

STAFF SUMMARY SHEET

TO	ACTION	SIGNATURE (Surname), GRADE, AND DATE	TO	ACTION	SIGNATURE (Surname), GRADE AND DATE
1 633 ABW/JA	Coord	<i>[Signature]</i> 9 June 14	6 633 ABW/CCE	Coord	<i>[Signature]</i>
2 733 MSG/CSM	Coord	<i>[Signature]</i> 6/9/14	7 633 ABW/CCS	Coord	<i>[Signature]</i> 6/11/14
3 733 MSG/VC	Con	<i>[Signature]</i> 6/9/14	8 633 ABW/DS	Coord	<i>[Signature]</i> 6/13, 17 Jun 14
4 733 MSG/CC	Con	<i>[Signature]</i> 6/9/14	9 633 ABW/CV	Coord	<i>[Signature]</i> 18 Jun 14 Rec Approval
5 633 ABW/CCEA	Coord	<i>[Signature]</i> 11 Jun 14	10 633 ABW/CC	Con	<i>[Signature]</i> (18)

SURNAME OF ACTION OFFICER AND GRADE: Christensen, GS-12
733 CED/EE
PHONE: 878-4231
TYPIST'S INITIALS: TPC
SUSPENSE DATE: 15 Jun 2014

SUBJECT: Environmental Assessment and Finding of No Significant Impact
DATE: 6 June 2014

SUMMARY

1. PURPOSE: Obtain signature for the Finding of Significant Impact (FONSI) [Tab A] for the Supplemental Environmental Assessment (EA) [Tab B] for the Skiffes Creek Federal Navigation Channel Maintenance Dredging.

2. BACKGROUND:

a. In 2003, Fort Eustis prepared an Environmental Assessment (with a resulting FONSI) for dredging Skiffes Creek. The scope of that project involved dredging that portion of Skiffes Creek affecting operation of military watercraft/3d Port and disposing the dredge materials in the Fort Eustis Dredged Material Management Area (FEDMMA). This assessment included refurbishing of the FEDMMA.

b. In 2012, dredging was scheduled again. However, a supplemental EA to the original EA prepared in 2003 was needed because several issues existed in 2012 that did not exist in 2003. This included the listing of the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) as federally endangered (occurring in the James River), the presence of an active bald eagle (*Haliaeetus leucocephalus*) nest site near the project area and pesticide treatment of invasive common reed (*Phragmites australis*) in and around the FEDMMA.

c. During the review process for the EA in 2012, it was determined that the FEDMMA was reaching the end of its life cycle and that refurbishing of the FEDMMA was once again needed. As a result other disposal options were evaluated. It was determined that an initial dredge would occur with disposal going to the Norfolk Ocean Disposal Site (NODS). A new SEA (Tab B) was prepared to evaluate the new issues addressed above.

The outcome of this EA constituted a FONSI as well as a FONPA. A FONSI and FONPA are combined as one document. In the latter case, a FONPA was required per Air Force Instruction (AFI) 32-7064 because the project must occur within a 100-year floodplain and may incur some wetland permitting.

d. The new SEA (Tab B) was staffed through installation stakeholders as well as with external federal and state regulatory agencies. No significant issues were addressed by federal and state agencies. Additionally, the EA was made available for public comment. No comments were received.

3. RECOMMENDATION: Recommend approval of the FONSI and signature of the FONSI.

[Signature]
MARK J. SCIACCHITANO
Director, 733d Civil Engineer Division

2 Tabs
A. FONSI/FONPA
B. SEA

14-0351
ABW #1885

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 18 JUN 2014		2. REPORT TYPE Final		3. DATES COVERED -	
4. TITLE AND SUBTITLE Final Supplemental Environmental Assessment Skiffes Creek Federal Navigation Channel Maintenance Dredging, Joint-Base Langley-Eustis, Fort Eustis, Virginia				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Corps of Engineers Operations Branch 803 Front Street Norfolk, Virginia 23510				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release, distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT SAR	18. NUMBER OF PAGES 454	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

**Finding of No Significant Impact
Skiffes Creek Federal Navigation Channel
Maintenance Dredging
Joint Base Langley-Eustis
Fort Eustis, Virginia**

Pursuant to the Council on Environmental Quality Regulations (40 CFR Parts 1500-1508) for implementing the procedural provisions of the National Environmental Policy Act (42 U.S.C. 4321 et seq.) and Title 32 of the Code of Federal Regulations Part 989, a Supplemental Environmental Assessment (SEA) was prepared by the U.S. Army Corps of Engineers, Norfolk District, for the dredging of Skiffes Creek Channel at the 3rd Port Facility located at Joint Base Langley-Eustis, Fort Eustis, Virginia. The purpose of the SEA is to supplement the 2003 Environmental Assessment to address ocean disposal of dredged material and new information concerning the listing of the Atlantic sturgeon under Endangered Species Act (ESA). The SEA is a tiered evaluation addressing the potential environmental effects associated with the proposed transport for the purpose of placement of dredged material at Norfolk Ocean Disposal Site (NODS) and cumulative effects of the whole project when combined with the maintenance dredging activity evaluated in the 2003 assessment.

Proposed Action

Joint Base Langley-Eustis proposes to maintenance dredge Skiffes Creek Channel to ensure safe navigation and provide operational depths for vessels accessing the Third Port facility. Approximately 325,000 cubic yards of dredged material from the current maintenance dredging cycle is proposed for transport for the purpose of placement at the NODS. The proposed action is the preferred alternative for the current and future maintenance dredging cycles when the Fort Eustis Dredged Material Management Area (FEDMMA) is not available for dredged material placement.

Historically, FEDMMA has been the primary dredged material placement site. However, the FEDMMA is currently at capacity and will require maintenance and rehabilitation to build additional capacity. The site will not be available for dredged material placement until Fiscal Year 2016. The site undergoes periodic maintenance to construct new capacity and to control invasive common reed. Once the FEDMMA facility has reached maximum capacity dredged material from future maintenance dredging cycles determined to be suitable for ocean placement may be placed at the NODS. It is estimated up to 1-million cubic yards each maintenance dredging cycle may be transported for the purpose of ocean placement at the NODS every 5 to 7 years.

Alternatives Considered

Multiple alternative disposal sites to the proposed action were considered, including the Craney Island Dredged Material Management Area (CIDMMA), overboard placement in the James River, upland placement at Port Weanack in Charles City County, Virginia, and alternate upland disposal at landfill and treatment facilities. The CIDMMA alternative was revisited from the 2003 EA evaluation, and it was not considered viable since Skiffes Creek Channel is not located within the geographic service area defined in the law authorizing CIDMMA as a dredged

Finding of No Significant Impact Skiffes Creek Federal Navigation Channel

material placement facility. Dredged material placement in the James River at historically used overboard sites was considered not to be a viable alternative due to the extensive shellfish resources within this reach of the James River. Dredged material placement at previously used or newly created overboard sites within an economic pumping distance would conflict with other beneficial uses of the waterway. Upland placement at Port Weanack is considered a viable alternative for dredged material that meets the Virginia Exclusionary Criteria (as specified in the facility permit). However, this alternative is not the preferred alternative since the Skiffes Creek Channel may not meet soil suitability requirements to support long-term vegetative growth based on the potential acidity of the soils. Lime amendments may be required to meet site objectives. In addition to logistics and dredge production constraints associated with this alternative, it does not meet the federal standard requirement of selecting the least cost environmentally acceptable alternative. Dredged material disposal at alternative upland disposal at sanitary landfills and treatment facilities was a considered alternative. Disposal at upland sanitary landfills or treatment facilities may be considered a viable alternative for dredged material that does not meet ocean placement requirements or Virginia exclusionary criteria. Sanitary landfills and treatment facilities have finite capacity that are generally intended for disposal of municipal waste streams, or more highly contaminated materials that are not suitable for other disposal alternatives or beneficial uses. Disposal of sediments from dredging projects at upland facilities may require the addition of amendments to reduce the moisture content of saturated sediments and minimize leachate in the landfill system. Disposal at landfill or treatment facility locations present significant fiscal and technical challenges. Disposal at upland sanitary landfills or treatment facilities should be considered the preferred alternative for dredged materials that are determined not to be suitable for ocean placement or Port Weanack.

The CEQ regulations prescribe including a no action alternative, which serves as a benchmark against which proposed actions can be evaluated. The no action alternative assumes that Skiffes Creek Channel would not be maintenance dredged and as a result no dredged material placement at NODS would be required. This alternative would eliminate the environmental impacts to aquatic and benthic communities at the channel site and the NODS. Discontinued maintenance of the channel would result in the continued reduction in operational depth of the navigation channels. Eventually the channels would reach hydrodynamic equilibrium as determined by the tidal and fluvial currents of Skiffes Creek and the James River. This depth would approximate the adjacent bathymetry of the James River and would not be adequate for Fort Eustis to function in its watercraft operation. Adversely, it would allow the navigation channel to naturally shoal thereby eliminating the benefits of the waterway by closing it off to safe navigation. Eventually vessels would not be able to access the Third Port facility. In addition, commercial vessels would not be able to access industrial complexes located upstream.

Factors Considered in Determining that No Environmental Impact Statement is Required

The purpose of this Supplemental Environmental Assessment (SEA) is to supplement the 2003 Environmental Assessment (EA) for maintenance dredging Skiffes Creek Channel Federal Navigation Channel. Several key changes have occurred since the dredging was last performed in 2004. First, Fort Eustis is now aligned with the U.S. Air Force under Langley Air Force Base (LAFB). Environmental impact analysis of projects must follow U.S. Air Force policies. Second, in 2012 the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) was listed as a

Finding of No Significant Impact Skiffes Creek Federal Navigation Channel

federally endangered species under the Endangered Species Act and its listing generates a need for an updated evaluation of potential impacts. Third, bald eagles (*Haliaeetus leucocephalus*) have been delisted since 2007; however, they are afforded special protection under the Bald and Golden Eagle Protection Act and promulgated federal regulations. One active nest exists near the project area that was not in this location at the time of the 2004 dredging. Fourth, Fort Eustis recently embarked upon major efforts to control the invasive grass, Common Reed (*Phragmites australis*). Control efforts include this plant within the Fort Eustis Dredged Material Management Area (FEDMMA). Lastly, the current upland confined placement facility, the FEDMMA site, is nearing the end of its life cycle and may reach its maximum capacity in the near future maintenance dredging cycles. The FEDMMA does not have existing capacity to accept dredged material for the current maintenance dredging cycle. Capacity will be constructed for the future maintenance dredging before the site is used. Dredged material placement at the Norfolk Ocean Disposal Site (NODS) has been evaluated as the preferred alternative for the immediate maintenance dredging cycle and for future maintenance dredging cycles after the FEDMMA has reached the end of its useful life.

These factors constitute the rationale for a SEA. The previous EA did not address these impacts. This SEA has been prepared to address these factors and ensure compliance with the National Environmental Policy Act of 1969. This SEA assesses these factors since these represent the only changes in the affected environment since the 2003 EA. Potential direct, indirect, and cumulative effects of the proposed action and no action alternative on these factors have been examined. No adverse effects were identified relating to impacts on listed Atlantic sturgeon and NMFS has provided a “not likely to adversely affect” determination through Endangered Species Act (ESA), Section 7 consultations. The transport and placement of dredged material at NODS meets the Marine Protection, Research, and Sanctuaries Act (MPRSA) limiting permissible concentrations for liquid phase, liquid and suspended particulate phase, and solid phase dredged material. The transport and placement of dredged material at the NODS is consistent with U. S. Environmental Protection Agency (USEPA) designated use of the site as a dredged material placement site. The USEPA has conducted an independent evaluation of the Skiffes Creek Channel project and determined the project complies with MPRSA Section 103 criteria and provided concurrence to the USACE on May 13, 2014. Consideration of cumulative effects of the project including maintenance dredging of the Skiffes Creek Channel assessed in the 2003 EA and the transport of dredged material for the purpose of placement at the NODS considered in the tiered SEA will have no significant direct or indirect effects on the environmental resources and the actions are consistent with designated uses of the sites.

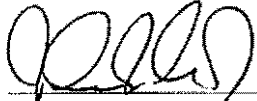
Public Comment

The SEA was released in April of 2014 for a 30-day public and agency review. Comments received on the April 2014 SEA were carefully reviewed; these comments did not alter the environmental analyses and conclusions that no significant impacts are anticipated as a result of the project. All comments and responses are provided in Section 6.2 of the Final SEA.

Finding of No Significant Impact Skiffes Creek Federal Navigation Channel

Conclusion

Based on the results of the SEA, it has been determined that implementation of the proposed action will have no significant direct or indirect effects on the environmental resources. Therefore, an Environmental Impact Statement is not required.



JOHN J. ALLEN, JR., Colonel, USAF
Commander, 633d Air Base Wing
Joint Base Langley-Eustis, VA

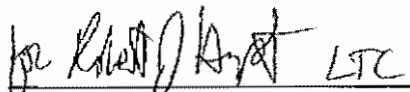
18 JUNE 2014

Date

Finding of No Significant Impact Skiffes Creek Federal Navigation Channel

Supplemental Environmental Assessment
Skiffes Creek Federal Navigation Channel
Maintenance Dredging
Joint Base Langley-Eustis
Fort Eustis, Virginia

Prepared by:


 LTC

Paul B. Olsen, P.E.
COL, EN
Commanding

4 June 2014

Date

Reviewed by:



WILLIAM S. GALBRAITH
COL, LG
COMMANDER
733d Mission Support Group
Army Support Activity – Eustis
Joint Base Langley-Eustis, VA

9 June 14

Date

Approved by:



JOHN J. ALLEN, JR., Colonel, USAF
Commander, 633d Air Base Wing
Joint Base Langley-Eustis, VA

18 June 2014

Date

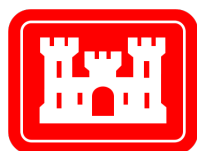
Final Supplemental Environmental Assessment Skiffes Creek Federal Navigation Channel Maintenance Dredging

Joint Base Langley-Eustis

Fort Eustis, Virginia



Prepared By:
U.S. Army Corps of
Engineers
Operations Branch
803 Front Street
Norfolk, Virginia 23510
June 2014



I. EXECUTIVE SUMMARY	10
1 INTRODUCTION	11
1.1 Proposed Action.....	11
1.2 Background	12
1.3 Purpose and Need	12
1.4 Scope.....	12
1.5 Public and Agency Involvement.....	13
2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES	14
2.1 Introduction.....	14
2.1.1 Proposed Action - Ocean Disposal of Dredged Material.....	14
2.1.2 Proposed Action – FEDMMA Maintenance Activities, Control of Common Reed ..	14
2.2 Project Site.....	14
2.2.1 Vicinity Description.....	14
2.2.2 Fort Eustis	15
2.2.3 FEDMMA	15
2.2.4 Skiffes Creek Channel	16
2.2.5 Norfolk Ocean Disposal Site (NODS).....	17
2.2.5.1 NODS Site History	17
2.2.5.2 NODS Location and Management.....	18
2.2.6 Permitted Landfills.....	19
2.2.7 Other Facilities	20
2.3 Impact Topics From 2003 EA Eliminated From Further Analysis and Consideration	20
2.4 Additional Impact Topics Eliminated From Further Analysis and Consideration	21
2.4.1 Submerged Aquatic Vegetation	21
2.4.2 Environmental Justice.....	21
2.4.3 Socioeconomic Resources	22
2.4.4 Cultural Resources	22
3 ALTERNATIVES TO THE PROPOSED ACTION.....	22
3.1 No Action.....	22
3.2 Dredged Material Placement at Craney Island Dredged Material Management Area (CIDMMA).....	23
3.3 Overboard Placement Areas in the James River.....	23
3.4 Beneficial Uses of Dredged Material.....	23
4 AFFECTED ENVIRONMENT	24
4.1 Overview	24

4.2	MPRSA - Dredged Material Characterization.....	24
4.2.1	Applicable Regulations and Testing.....	25
4.2.2	Evaluation of the Liquid Phase – Water Quality Criteria (WQC).....	27
4.2.3	Evaluation of the Liquid and Suspended Particulate Phases – Water Column Bioassay	27
4.2.4	Evaluation of the Solid Phase – Whole Sediment Bioassay.....	27
4.2.5	Evaluation of the Solid Phase – Bioaccumulation Evaluation.....	27
4.3	FEDMMA Maintenance Activities – Control of Common Reed.....	28
4.4	Protected Species	28
4.4.1	Atlantic Sturgeon	28
4.4.2	Bald Eagle.....	29
5	ENVIRONMENTAL CONSEQUENCES	33
5.1	Overview.....	33
5.2	MPRSA- Dredged Material Characterization.....	33
5.2.1	Proposed Action.....	33
5.2.1.1	Evaluation of the Liquid Phase – Water Quality Criteria (WQC).....	34
5.2.1.2	Evaluation of the Liquid and Suspended Particulate Phases – Water Column Bioassay	34
5.2.1.3	Evaluation of the Solid Phase – Whole Sediment Bioassay	34
5.2.1.4	Evaluation of Solid Phase – Bioaccumulation Evaluation	34
5.2.2	No-Action Alternative	35
5.3	FEDMMA Maintenance Activities – Control of Common Reed.....	35
5.3.1	Proposed Action.....	35
5.3.2	No-Action Alternative	35
5.4	Protected Species	35
5.4.1	Proposed Action.....	35
5.4.1.1	Atlantic Sturgeon	35
5.4.1.2	Bald Eagles	36
5.4.2	No-Action Alternative	36
5.5	No-Action Alternative	36
5.6	Cumulative Impacts	36
6	AGENCY COORDINATION	38
6.1	Conclusions and Recommendations	38
6.2	Comments Received on Draft SEA (May 2014)	38
7	REFERENCES	41

8 CONTACT INFORMATION.....	42
Figure 1 Regional Location of Fort Eustis.....	15
Figure 2 Skiffes Creek Channel, Condition Survey March 2014	17
Figure 3 Skiffes Creek Channel Cross-Sections	17
Figure 4 Norfolk Ocean Disposal Site, Location Map	19
Figure 5 Submerged Aquatic Vegetation in the Vicinity of Skiffes Creek	21
Figure 6 Skiffes Creek Channel Proximity to Private Oyster Leases	24
Figure 7 Skiffes Creek Channel Dredged Material Sampling Locations	25
Figure 8 Bald Eagle Nest Sites at Fort Eustis	31
Figure 9 Bald Eagle Nest Site in Vicinity of Dredging Operations.....	32
Table 5.1 Environmental Consequences Summary	37
Appendix A – Permits	
Appendix B – MPRSA, Section 103 Evaluation Report	
Appendix C – 2003 Environmental Assessment for Skiffes Creek Channel Maintenance Dredging	
Appendix D – Coastal Consistency Determination	
Appendix E – Consultation Letters	
Appendix F– SEA Public and Agency Coordination (April 2014)	

I. EXECUTIVE SUMMARY

The purpose of this Supplemental Environmental Assessment (SEA) is to supplement the 2003 Environmental Assessment (EA) for restoring navigation to the Skiffes Creek Channel Project. Several key changes have occurred since the dredging was last performed in 2004. First, Fort Eustis is now aligned with the U.S. Air Force under Langley Air Force Base (LAFB). Environmental impact analysis of projects must follow U.S. Air Force policies. Second, in 2012 the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) was listed as a federally endangered species under the Endangered Species Act and its listing generates a need for an updated evaluation of potential impacts. Third, bald eagles (*Haliaeetus leucocephalus*) have been delisted since 2007; however, they are afforded special protection under the Bald and Golden Eagle Protection Act and promulgated federal regulations. One new active nest exists near the project area that was not in this location at the time of the 2004 dredging. Fourth, Fort Eustis recently embarked upon major efforts to control the invasive grass, Common Reed (*Phragmites australis*). Control efforts include this plant within a portion of the project area. Lastly, the current upland confined placement facility, the Fort Eustis Dredged Material Management Area (FEDMMA) site, is nearing the end of its life cycle and may reach its maximum capacity following one additional maintenance dredging cycle. The FEDMMA does not have existing capacity to accept dredged material for the current maintenance dredging cycle. Capacity will be constructed for the future maintenance cycle before the site is used. Alternative dredged material placement at the Norfolk Ocean Disposal Site (NODS) have been evaluated for the immediate maintenance dredging cycle and for future maintenance dredging cycles after the FEDMMA has reached the end of its useful life.

These factors constitute the rationale for a SEA. The previous EA did not include this new information. This SEA has been prepared to address these issues and ensure compliance with the National Environmental Policy Act of 1969. This SEA primarily assessed the issues noted since these represent the only changes in the affected environment since the 2003 EA.

1 INTRODUCTION

Fort Eustis maintains the Third Port facility located along the Skiffes Creek channel. This facility provides a strategic port facility to support military watercraft and other government agencies in cargo operations, logistics management, training and vessel operation. It consists of a pier for movement control and berthing of approximately 126 military watercraft consisting of tugboats, Logistics Support Vessels, Landing Craft Mechanized and fuel barges. Skiffes Creek must be dredged periodically in order to maintain an operational channel for movement of these watercrafts. Maintenance dredging of the channel was last performed in 2004.

An Environmental Assessment (EA) was prepared in 2003. The 2003 EA evaluated the potential environmental effects associated with maintenance dredging of two unconnected neighboring channels located in Fort Eustis, Virginia (Skiffes Creek Channel and the U. S. Maritime Administration channel) as well as improving the structural integrity of the upland confined placement facility, the Fort Eustis Dredged Material Management Area (FEDMMA) and concluded that no significant impacts would occur. Subsequently, a Finding of No Significant Impacts (FONSI) was signed.

Both the EA prepared in 2003 and this SEA were developed in accordance with the National Environmental Policy Act (NEPA) of 1969, Council on Environmental Quality (CEQ) Implementing Regulations and Air Force policies (32 CFR Part 989). The purpose of these documents is to inform decision makers and the public of the likely environmental consequences of the proposed action and alternatives.

This Supplemental Environmental Assessment (SEA) identifies, documents and evaluates the potential environmental effects due to the following changes since the 2003 EA. Fort Eustis and Langley Air Force Base (LAFB) are now a joint base, Joint Base Langley-Eustis, with the Air Force assuming responsibility for environmental matters on the installation. As such, environmental impact analysis of projects must follow U.S. Air Force policies. Second, the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) was listed as a federally endangered species under the Endangered Species Act in 2012. Its listing generates a need for an updated evaluation of potential impacts. Third, bald eagles (*Haliaeetus leucocephalus*) have been delisted since 2007; however, they are afforded special protection under the Bald and Golden Eagle Protection Act and promulgated federal regulations. One new active nest exists near the project area. Fourth, Fort Eustis recently embarked upon major efforts to control the invasive grass, Common Reed (*Phragmites australis*). Control efforts include this plant within a portion of the project area. Additionally, the Fort Eustis Dredged Material Management Area (FEDMMA) placement site does not have sufficient capacity to place the dredged material and will need to be restored before dredged material placement. Additional alternative sites have been identified and evaluated for material placement.

1.1 Proposed Action

Fort Eustis needs to conduct maintenance dredging of the Skiffes Creek Channel to maintain an operational channel for its watercraft. Once, the FEDMMA is restored, the dredged material may be placed in the previously used upland placement facility. Impacts for alternative sites were examined for dredged material placement. The Norfolk Ocean Disposal Site (NODS) is

also a preferred alternative during the current and future periods when the FEDMMA is unavailable for receiving dredged material.

1.2 Background

The 7th Transportation Brigade (Expeditionary) is an assigned tenant element of Fort Eustis. It berths its watercraft at the harbor complex at the Third Port facility at Fort Eustis, Virginia, at the confluence of Skiffes Creek with the James River. The Third Port is a deepwater port used to train personnel in cargo logistics and vessel operations under the management of the 733d Mission Support Group Harbormaster Office. The facility provides a safe harbor for 7th Transportation Brigade (Expeditionary) watercraft fleet and serves as a deployment platform for Army units. In addition, it is a joint service training facility for watercraft operators and cargo handlers. There are 61 vessels and causeway barges that utilize the Third Port facility routinely while over 1,000 additional watercraft of other Services and federal agencies may also operate at Third Port and Skiffes Creek at various times. Additionally, some commercial vessels require access to industrial complexes located upstream on Skiffes Creek. While the watercraft at the Third Port facility are Army property, Third Port is part of Joint Base Langley-Eustis, Fort Eustis which is managed by the U.S. Air Force. Consequently, this assessment is based on U.S. Air Force Environmental Impact Assessment Process (EIAP) policies (Title 32 of the Code of Federal Regulations Part 989).

1.3 Purpose and Need

The U.S. Air Force proposes to conduct continued maintenance dredging the navigation channel of Skiffes Creek in a manner consistent with previous dredging operations at this location. The purpose of the proposed action is to provide adequate access for vessels using the Third Port. Current force structuring consists of 61 vessels assigned to the Third Port. These vessels include 3 tug boats (ranging in size from 60 feet to 128 feet in length), 2 Logistics Support Vessels (274 feet), 8 Landing Utility Craft 2000 (174 feet), 12 Landing Craft Mechanized (73 feet), 1 fuel barge, 7 warping tugs, 30 causeway barges, 3 security vessels, 2 Harbormaster vessels, and 2 fire boats.

Current soundings in Skiffes Creek indicate the channel leading to the Third Port and its main pier has shoaled in some locations. Vessels are subject to running aground, hampering navigation. Vessels utilized by the 7th Transportation Brigade (Expeditionary) use seawater to cool the engines and transfer power from bow thrusters. With the current shallow depths, these vessels are drawing silt and muck into these systems resulting in increased maintenance, repairs and downtime for the larger vessels. Because of the shoaling the existing channel width will not allow large vessels to enter and exit the channel simultaneously, thus increasing the time associated with contingency deployments.

1.4 Scope

Maintenance dredging of the Skiffes Creek channel has been performed for over 60 years. The last maintenance dredging cycle occurred in 2004. An Environmental Assessment (EA) prepared in 2003, resulted in a Finding of No Significant Impact (FONSI). Maintenance dredging of the Skiffes Creek channel is required to restore and maintain safe navigation in the channel. The FEDMMA undergoing maintenance and dike heights elevated to construct

additional capacity consistent with proposed action assessed in the 2003 EA. The existing footprint of the facility will remain the same. The FEDMMA facility is nearing maximum capacity for the approximately 80-acre site, therefore alternative placement sites are considered to meet immediate and long-term needs for dredged material management. Changes in the status of listed species and evaluation of alternate dredged material placement sites require a supplemental environmental assessment. This supplemental EA evaluates the potential environmental effects of maintenance dredging of the Skiffes Creek channel on the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), bald eagle (*Haliaeetus leucocephalus*) and control of invasive vegetation. Specifically, these changes constitute the listing of the Atlantic sturgeon as endangered, the presence of an active bald eagle nest near the immediate vicinity of the project site (that did not exist in 2003) and recent aggressive efforts to control the invasive grass, Common Reed (*Phragmites australis*).

1.5 Public and Agency Involvement

The draft SEA was coordinated with the following:

- City of Newport News
- Joint Base Langley-Eustis (JBLE)
- National Oceanic and Atmospheric Administration (NOAA)
- NOAA - National Marine Fisheries Service (NMFS)
- U.S. Army Corps of Engineers (USACE)
- U.S. Coast Guard (USCG)
- U.S. Environmental Protection Agency (EPA)
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)
- Virginia Department of Conservation and Recreation (VDCR)
- Virginia Department of Environmental Quality (VDEQ)
- Virginia Department of Game and Inland Fisheries (VDGIF)
- Virginia Department of Health (VDH)
- Virginia Department of Historic Resources (VDHR)
- Virginia Institute of Marine Science (VIMS)
- Virginia Marine Resources Commission (VMRC)

This SEA will be provided electronically to federal, state, and local regulatory agencies as well for public comment for a 30-day comment period. There will also be a link to it on the Norfolk District USACE (<http://www.nao.usace.army.mil/>) website.

2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 Introduction

The 733d Civil Engineer Division, Fort Eustis is responsible for maintenance dredging of the Skiffes Creek Channel to its authorized depth, width, and length. Maintenance dredging is necessary to maintain a safe operational channel for vessels and watercraft accessing the Third Port facility at Fort Eustis. Effects of maintenance dredging and dredged material placement at the FEDMMA were considered in previous environmental assessments.

2.1.1 Proposed Action - Ocean Disposal of Dredged Material

The proposed action considered in this supplemental environmental assessment includes the placement of suitable dredged materials at the Norfolk Ocean Disposal Site (NODS) to meet immediate maintenance dredging needs. Use of the NODS site will also be required to meet the future long-term maintenance dredging and placement needs once the FEDMMA reaches its maximum capacity.

Dredged material determined to be unsuitable for ocean placement in future maintenance dredging cycles will continue to be disposed at the FEDMMA. Once the FEDMMA reaches its maximum capacity unsuitable dredged material would require disposal at appropriate upland placement sites such as Port Weanack, regional landfills and/or treatment facilities.

2.1.2 Proposed Action – FEDMMA Maintenance Activities, Control of Common Reed

The approximately 80-acre upland FEDMMA facility will be available to accept dredged material once new dredged material capacity is constructed. Site upgrades and maintenance are currently in process; however, until appropriate facility upgrades are completed, the dredged material cannot be placed in the upland placement facility. Maintenance of the FEDMMA also includes control of common reed (*Phragmites australis*) through the application of glyphosphate herbicides and imazypur herbicides by certified applicators within label specifications. Common reed is a highly invasive grass that grows in large, monotypic stands in freshwater wetlands and in brackish wetlands where salinity is low enough. One of the largest stands of Common Reed on Fort Eustis is in the FEDMMA.

2.2 Project Site

2.2.1 Vicinity Description

The Virginia Peninsula, extending into the Chesapeake Bay, is formed by the York River to the north and the James River to the south. Fort Eustis is on the south side of the peninsula. The cities of Newport News, Hampton, Poquoson, and Williamsburg are near the installation. The north side of Skiffes Creek at Third Port constitutes James City County. Figure 1 shows the regional location of Fort Eustis.

2.2.2 Fort Eustis

Fort Eustis occupies approximately 7,900 acres. Recent improvements in GIS data and erosion by storm events/possible rising sea levels represent acreage changes from 8,228 acres noted in the 2003 EA. The installation is flanked by two bodies of water flowing into the James River these being Skiffes Creek to the northwest and Warwick River to the southeast. The Third Port facility is located in the northwest corner of Fort Eustis.

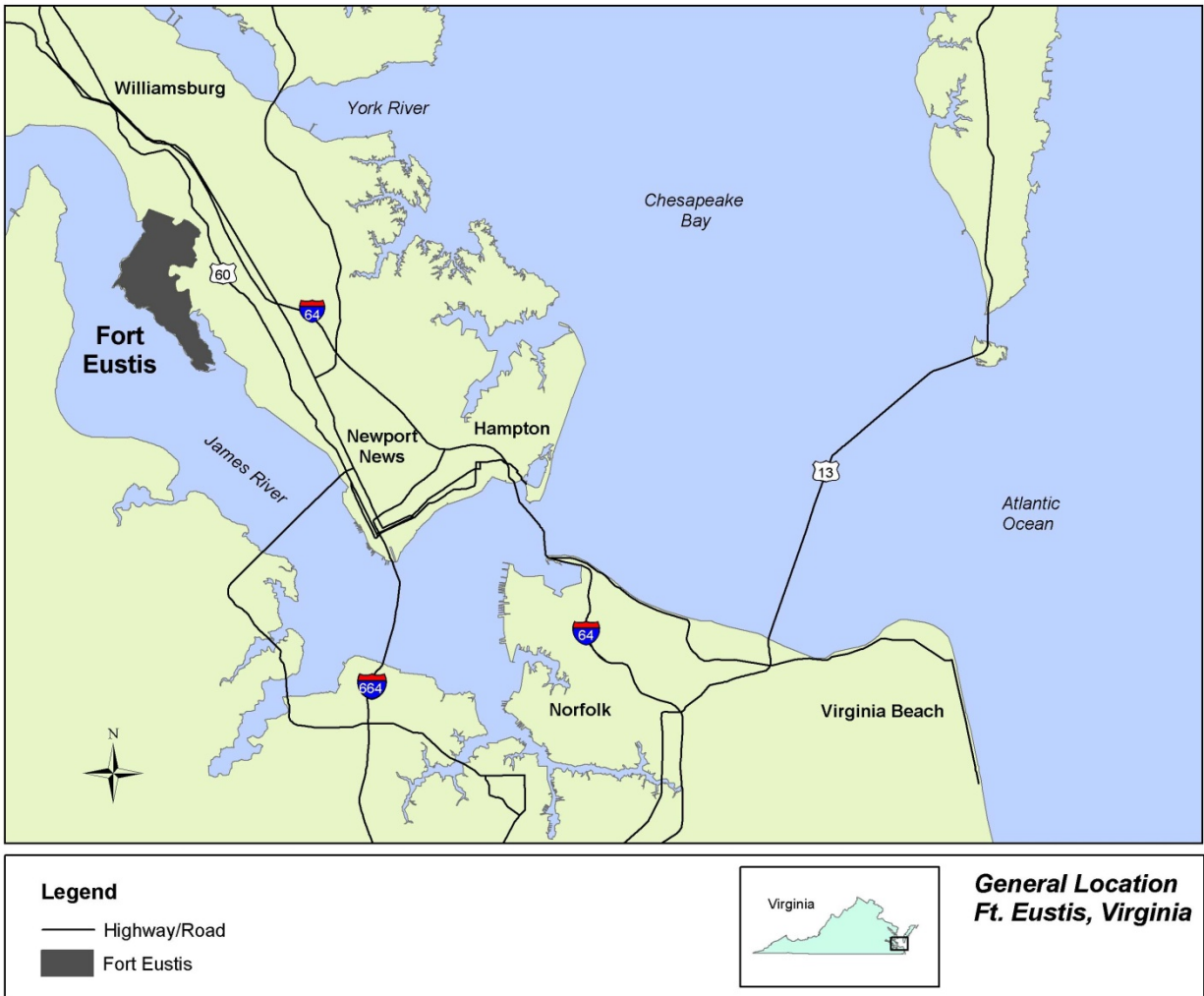


Figure 1 Regional Location of Fort Eustis

2.2.3 FEDMMA

The FEDMMA is located on the western portion of Fort Eustis, south of the Third Port facility. It is an approximately 80-acre upland confined placement facility constructed to accommodate dredge material from maintenance dredging. The site is immediately adjacent to a small holding area that contained a heating oil/sludge mixture, residue from a 1979 spill of 5,000 gallons of heating oil. The holding area is a National Priority List (NPL) site and is managed in accordance with the provisions of the Comprehensive Environmental Response, Compensation and Liabilities Act (CERCLA). The selected remedial action, as specified in the Record of Decision and Explanation of Significant Differences for Site 11C – Oil/Sludge Holding Pond, included the

excavation and off-site disposal of approximately 110 cubic yards of buried sludge/contaminated soil and 220 cubic yards of concrete from the site. The Remedial Action was completed 2006 but required long term monitoring (LTM). LTM took place over the next few years and was terminated in 2008. The site was officially closed with unlimited use and unrestricted exposure in September 2008 with EPA and VDEQ concurrence.

Dredged material placement operations at FEDMMA typically occur via hydraulic pipeline to the upland confined placement facility. The pipeline will consist of both floating and submerged pipeline to the shoreline, then cross Harrison Road and into the FEDMMA. A temporary ramp would be built over the pipeline allowing vehicles continued use of Harrison Road.

2.2.4 Skiffes Creek Channel

Skiffes Creek Channel is located in the lower James River and provides navigation from deep water in the James River Federal Navigation Channel (i.e. Tribell Shoal Channel) to the mouth of Skiffes Creek adjacent to the Third Port facility at Fort Eustis. The channel traverses the eastern half of the James River and is proximate to Hog Island in Surry County located to the west, Jamestown Island to the north and west located in James City County, and Goose Island in the City of Newport News located to the south.

The Skiffes Creek Channel is dredged in accordance with the diagram depicted as Figure 3. The channel consists of three areas with different dimensions. The outer portion of the channel is a 7,800-foot long area, station 0+00 to 77+64.16 (variable width) and -23 feet below mean lower low water (MLLW). The adjacent segment of the channel is 690-foot long area, station 77+64.16 and 83+52.69 (variable width) of -20 feet MLLW. The inner portion of the channel is a 715 foot long area, station 83+52.69 and 90+67.69 (variable width) of -14 feet below MLLW. All of the channel depths include 2 feet of paid allowable overdepth and 1 to 2 feet of nonpaid overdepth dredging consistent with Corps of Engineers policy, EP 1130-2-520. The volumes of nonpaid overdepth may vary depending on the type of dredge plant conducting the work. Mechanical dredges working in soft sediments typically will have a greater nonpaid volume or nonpaid depth than hydraulic cutterhead dredges. Up to 1,000,000 cubic yards of material may be dredged each maintenance cycle from this channel. This will be accomplished using either a mechanical dredge or hydraulic cutterhead dredge depending on the authorized placement site for each maintenance cycle.

Dredged material placement operations for alternatives requiring mechanical dredging will load the dredged sediments into barges or scows for transport to the disposal area or an off-loading area.

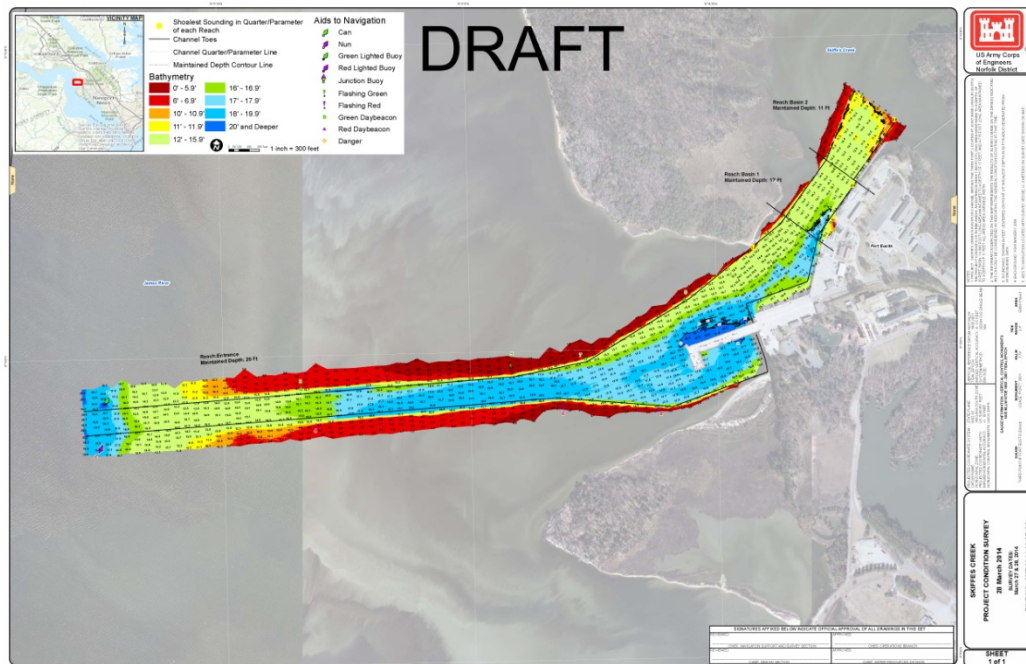


Figure 2 Skiffes Creek Channel, Condition Survey March 2014

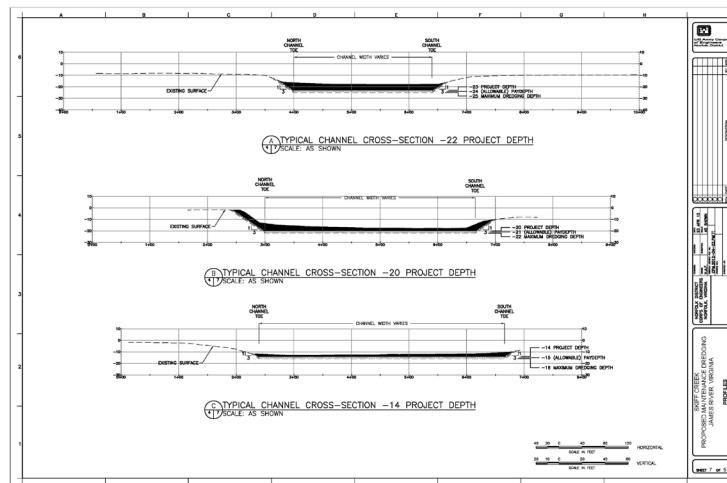


Figure 3 Skiffes Creek Channel Cross-Sections

2.2.5 Norfolk Ocean Disposal Site (NODS)

2.2.5.1 NODS Site History

Up to 325,000 cubic yards of sediment from the dredging activities associated with the current maintenance dredging cycle of Skiffes Creek Channel are proposed for placement at the NODS. Future maintenance dredging cycles determined to be suitable for placement at the NODS may place up to 1 million cubic yards of dredged material from the channel each cycle. The NODS was officially designated as an ocean placement site in 1993 pursuant to Section 102c of the Marine Protection, Research, and Sanctuaries Act of 1972 (as amended, 33 U.S.C. 1401 et seq).

The site has had a history of ocean disposal, as a portion of the NODS overlaps an area historically used for dredged material disposal prior to the 1960s.

To determine the site's suitability for ocean disposal, a Final Environmental Impact Statement (FEIS) for the NODS was submitted on July 23, 1982 by the U.S. Army Corps of Engineers Norfolk District. The results of the evaluation determined that the site was an acceptable location for ocean dumping. A test dump program conducted in October 1981 demonstrated that there was no evidence of widespread dispersal of dredged material during operations. In late 1981, an archaeological investigation concluded that no sites of archaeological interest would be endangered by disposal operations. As a result of the EIS, the NODS was designated by the U.S. Environmental Protection Agency (USEPA) as an approved ocean disposal location in December of 1986. In August 1993, the site was utilized in conjunction with the construction of the Cheatham Annex Naval Supply Center and the Naval Weapons Stations. These projects required the disposal of 51,000 CY and 475,000 CY dredged material respectively. The sediments from this dredging were primarily silt and clay. Since 2009 additional projects have received authorization to place dredged material at the NODS including the Craney Island Eastward Expansion (CIEE)(24.5 MCY), Norfolk Inner Harbor Channel 50-foot element (1 MCY), Baltimore Harbor Upper Bay Approach Channels, Virginia Department of Transportation – Midtown Tunnel Project (VDOT-MTT)(1.5 MCY), Cheatham Annex Naval Supply Center (48,000 cy), and the Yorktown Naval Weapons Station (65,000 cy). The VDOT-MTT project commenced placement operations at NODS in October 2013.

2.2.5.2 NODS Location and Management

The center of the NODS is located 17 nautical miles east of the mouth of the Chesapeake Bay. The NODS is circular with a radius of 4 nautical miles and an area of approximately 50 square nautical miles. The center of the NODS site is located at 36° 59' north latitude and 75° 39' west longitude. Water depths near the center of the site vary between 43 to 85 feet. Bottom topography is generally flat with depth contours running parallel to the coastline.

Currently the site is designated to receive new work and maintenance dredge material from Norfolk Harbor and the lower Chesapeake Bay. This site is authorized to receive appropriate dredge material from the Thimble Shoals, Cape Henry, Atlantic, Hampton Roads, and York Spit Federal navigation channels. An EIS, titled: "Final Environmental Impact Statement for the Designation of an Ocean Dredged Material Disposal Site Located Offshore Norfolk Virginia" was finalized in March of 1993.

Management of the NODS and dredged material placement operations at NODS are conducted in accordance with the Site Management and Monitoring Plan (SMMP). The SMMP for the NODS site establishes specific requirements for use of the site. The SMMP provides that only dredged material that has been evaluated in accordance the Marine Protection, Research, and Sanctuaries Act (MPRSA) Section 103 regulations may be placed at the site. The SMMP does not specify specific methods of placement, but does require that dredged material be evenly distributed to prevent unacceptable mounding and becoming a hazard to navigation. The management objective for the NODS area is to limit disposal quantities so as not exceed 1.3 billion cubic yards (BCY). The USACE has estimated that up to 250 MCY of dredge material from dredging projects (public and private) may be disposed at the site over the next 50 years.

The quantity of material placed at the site depends on the quality of the dredged material; only material that meets ocean dumping criteria will be placed at the NODS. Acceptable material includes unconsolidated fine to medium grain sands, silts, and clays. No seasonal restrictions to the placement of dredged material have been implemented for the site. The management plan requires that each ocean disposal event be verified and documented through a computer database system. Scow or hopper dredge transits and placement activities at NODS are required to be tracked using the USACE Dredge Quality Management program (formerly “Silent Inspector”) for tracking vessel transit locations and dredged material placement locations and activities.

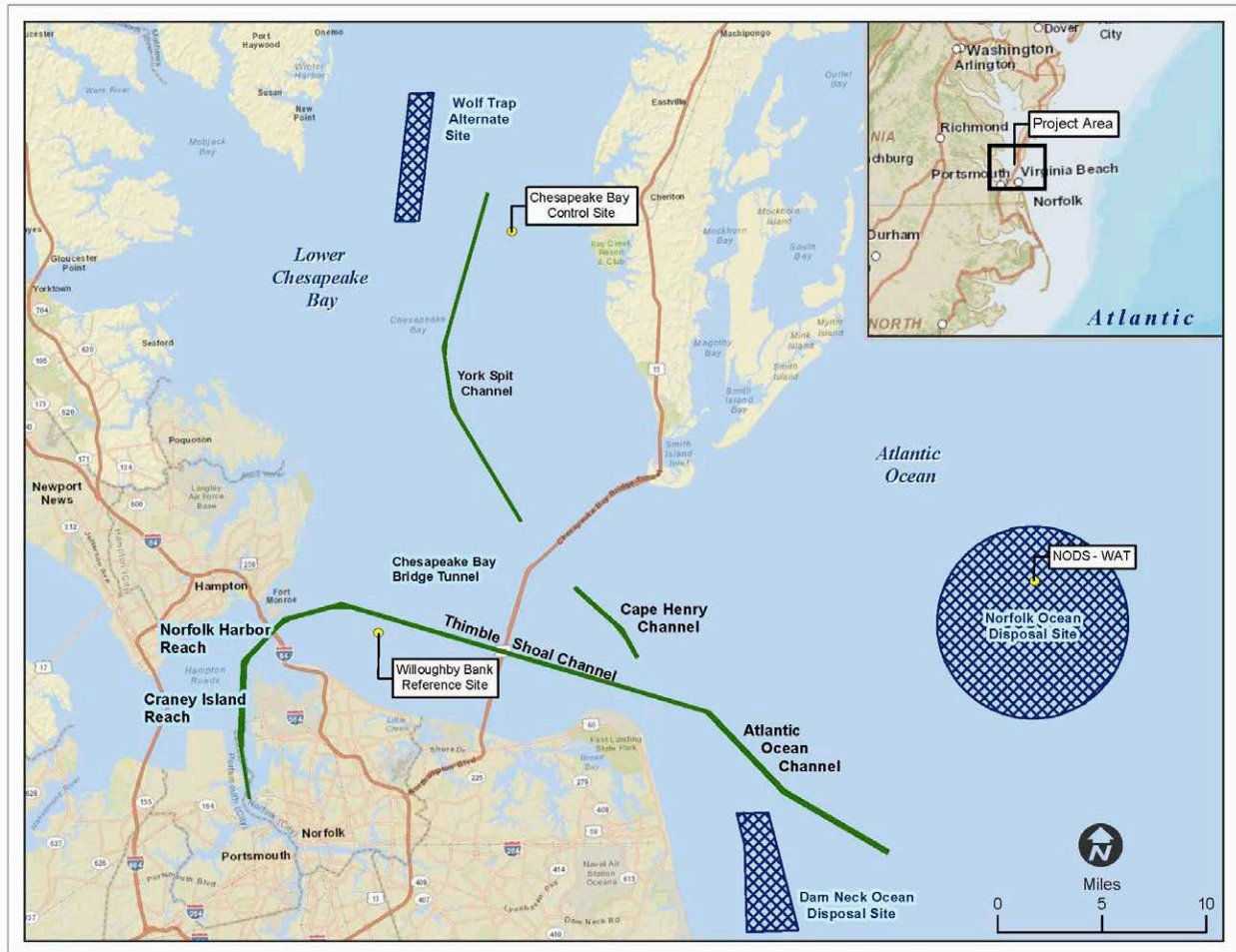


Figure 4 Norfolk Ocean Disposal Site, Location Map

2.2.6 Permitted Landfills

Three permitted landfills or treatment facilities are located within the region that may be considered for placement of dredged material considered unsuitable for ocean placement. These landfills are Big Bethel, Charles City, and Clearfield MMG, Inc. Big Bethel and Charles City landfills are located in the City of Hampton and Charles City County respectively. Clearfield MMG treatment facilities are located in the City of Chesapeake and the City of Suffolk. The regional landfill and treatment facilities do not have direct access to navigable waterways and would require truck haul operations to transfer materials to a designated facility. Other permitted

facilities may be considered for disposal as future sediment characterizations, facility capabilities, and operational considerations warrant.

The upland disposal evaluation of the sediments as solid wastes indicates that none of the constituents exceeded the Toxicity Characteristic Leaching Procedure (TCLP) screening criteria, the material passes paint filter test, and the polychlorinated biphenyl (PCB) Aroclors and benzene, toluene, ethylbenzene, and xylene (BTEX) compounds were detected at low concentrations within acceptable limits. Landfills are engineered cells designed to contain municipal solid wastes and collect liquid or leachate that may have percolated through solid waste.

Sanitary landfills and treatment facilities have finite capacity that are generally intended for disposal of municipal wastes streams, or more highly contaminated materials that are not suitable for other disposal alternatives or beneficial uses. Disposal of sediments from dredging projects at upland facilities may require the addition of amendments to reduce the moisture content of saturated sediments to minimize leachate in the landfill system. The addition of amendments results in the bulking of the material creating additional volume or tonnage to be disposed. Permitted facilities often have a maximum volume of material that may be accepted on a daily basis. Constraints for daily disposal volumes can protract dredging schedules. Disposal of sediments from Skiffes Creek Channel at an upland permitted landfill or treatment facility is viable generally for material unsuitable for overboard placement.

2.2.7 Other Facilities

Port Weanack facility located in Charles City County, Virginia were alternatives considered for dredged material placement. The Port Weanack facility was evaluated as a potential placement site. However, the facility is not considered the preferred alternative due to logistics and dredge production constraints.

2.3 Impact Topics From 2003 EA Eliminated From Further Analysis and Consideration

Since the maintenance dredging will not appreciably change from the project conducted in 2004, the following environmental components relating to maintenance dredging and use of the FEDMMA have been adequately assessed by the 2003 EA (See Appendix D).

- Air Quality (RONA)
- Noise
- Water Resources
 - Surface Waters
 - Surface Waters
 - Storm Water Runoff
 - Floodplains
 - Groundwater
 - Water quality
- Biological Resources
 - Terrestrial Vegetation

- Wetlands
- Wildlife
- Essential Fish Habitat

2.4 Additional Impact Topics Eliminated From Further Analysis and Consideration

2.4.1 Submerged Aquatic Vegetation

Virginia Institute of Marine Science (VIMS) has not identified any SAV in or adjacent to the project area (see Figure 5); therefore, this impact topic was dismissed from further analysis in this SEA.

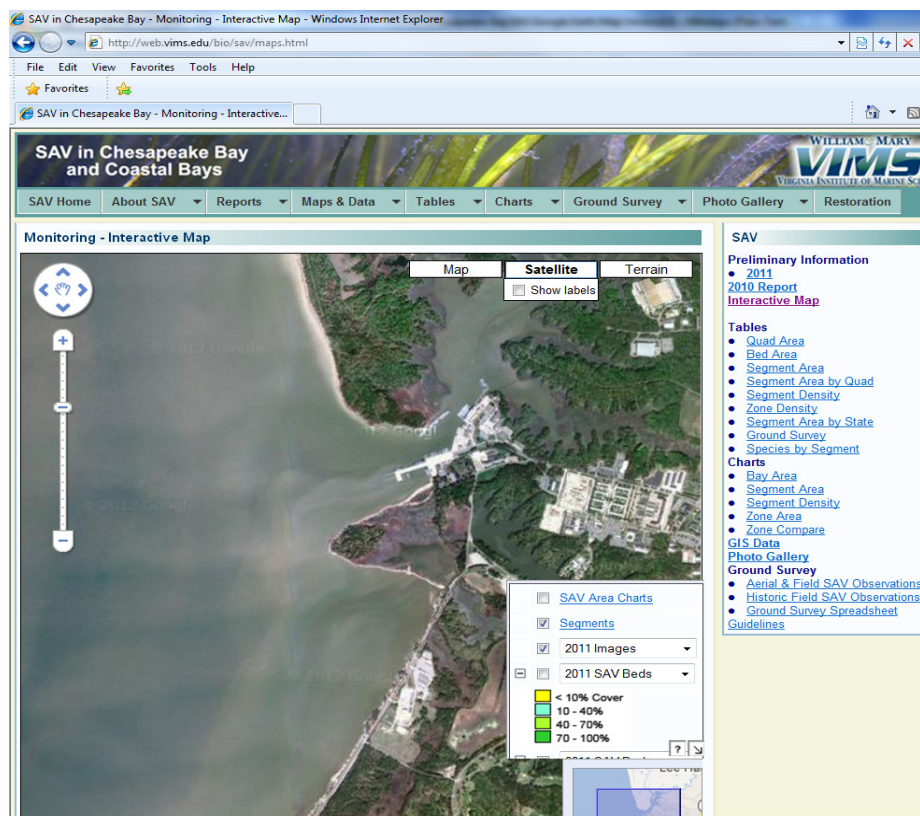


Figure 5 Submerged Aquatic Vegetation in the Vicinity of Skiffes Creek

2.4.2 Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations”. This order directs agencies to address environmental and human health conditions in minority and low-income communities to avoid the disproportionate placement from any adverse effects by Federal policies and actions on these populations. There are no local residents in the immediate proximity of the Skiffes Creek Channel project. The dredging operations in Skiffes Creek Channel (nor deposition of sediment at the FEDMMA or NODS) do not involve the release or

deposition of hazardous substances or excessive noise level to any local communities. This impact topic was dismissed from further analysis in this SEA.

2.4.3 Socioeconomic Resources

NEPA requires an analysis of impacts to the human environment, which includes economic, social, and demographic elements in the affected area. The current conditions in the project area, as represented by the No-Action Alternative, would not have any impacts to the socioeconomic resources of the surrounding area. The Proposed Action would neither change local and regional land use, nor appreciably affect local businesses or other agencies. Implementation of the Proposed Action could provide a negligible beneficial impact to the nearby surrounding economies resulting from a reliable maintained navigation channel. Maintenance dredging may provide short-term minimal increases in employment opportunities for the construction workforce and revenues for local businesses and government generated from construction activities. Since the impacts to the socioeconomic resources associated with the project would be negligible, this impact topic was dismissed from further analysis in this SEA.

2.4.4 Cultural Resources

Consultation with the State Historic Preservation Office (SHPO) was completed on June 26, 2012. A copy of the consultation letter sent to the SHPO and their response is located in Appendix A. Since the proposed action is maintenance dredging of channels previously dredged, the proposed action would not affect any known architectural or archeological resources listed in or eligible for the NRHP or Virginia Landmarks Register.

3 ALTERNATIVES TO THE PROPOSED ACTION

3.1 No Action

The “No Action” alternative is an estimation of the most probable future conditions expected to occur in the absence of maintenance dredging of the Skiffes Creek Channel. Maintenance dredging would not be performed of sediment accumulated within the Skiffes Creek channel. This alternative would eliminate the environmental impacts to the benthic community in the channel. Discontinued maintenance of the channel would result in the continued reduction in operational depth of the navigation channels. Eventually the channels would reach hydrodynamic equilibrium as determined by the sediment transport, tidal and fluvial currents of Skiffes Creek and the James River. This depth would approximate the adjacent bathymetry of the James River and would not be adequate for Fort Eustis to function in its watercraft operation. Adversely, it would allow the navigation channel to naturally shoal thereby eliminating the benefits of the waterway by closing it off to safe navigation. Eventually vessels would not be able to access the Third Port facility. Training of personnel in cargo logistics and vessel operations would not be able to be performed. The Army would not be able to continue contingency deployments from the Third Port facility. In addition, commercial vessels would not be able to access industrial complexes located upstream.

This alternative was discarded because it fails to meet the project objectives.

3.2 Dredged Material Placement at Craney Island Dredged Material Management Area (CIDMMA)

The U.S. Army Corps of Engineers, Craney Island Dredged Material Management Area (CIDMMA) located in the City of Portsmouth, Virginia was a considered alternative for dredged material placement. The CIDMMA is a Congressionally authorized dredged material placement site. The site is a confined disposal facility located in Norfolk Harbor. CIDMMA was determined not to be a viable alternative since Skiffes Creek Channel is not located within the geographic service area defined in the law authorizing CIDMMA as a dredged material placement facility.

3.3 Overboard Placement Areas in the James River

Historical dredged material overboard placement sites are located along the James River Federal Navigation Project, Tribell Shoal Channel. However, the Virginia Marine Resources Commission has limited the use of these placement sites to the upper most portions of Tribell Shoal Channel due to extensive shellfish resources within this reach of the James River. Additionally, new overboard sites that could accommodate immediate and future maintenance dredging cycles and that are within an economic pumping distance of the project was not considered to be a viable alternative due to the presence and density of shellfish resources including private leased and public baylor oyster grounds (see Figure 6).

3.4 Beneficial Uses of Dredged Material

Beneficial uses of dredged material from Skiffes Creek Channel that may benefit habitat development or restoration were considered in the near shore areas surrounding Skiffes Creek Channel. However, due to the fine-grained nature of the channel sediments and volumes associated with each maintenance cycle, long-term and large scale beneficial uses may conflict with other permitted uses of the waterway, such as the extensive local oyster grounds. The exposed nature of the local shoreline environment, current, and wave energy may constrain the use of the fine-grained dredged material for these beneficial uses. Based on the constraints, beneficial use projects were considered not to be viable at this time. Specific projects may emerge in the future that can accommodate fine-grained sediments and may allow for limited one-time placement of the dredged material.

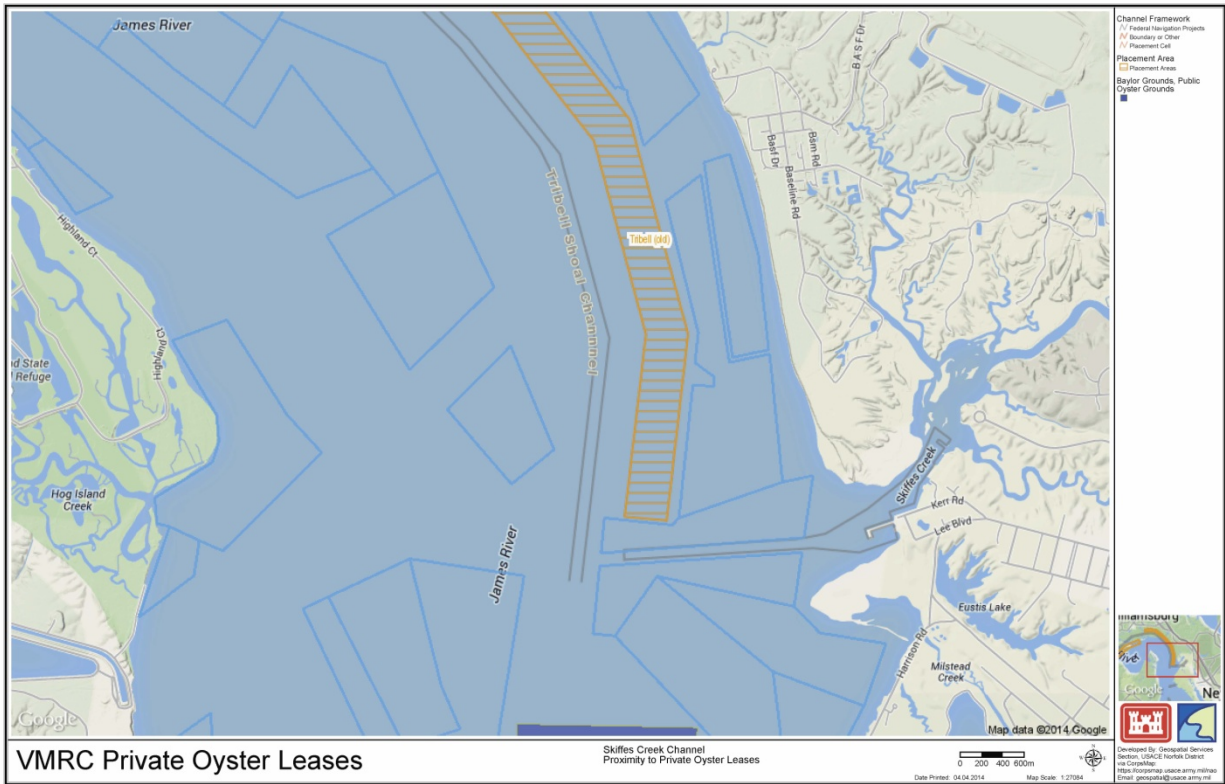


Figure 6 Skiffes Creek Channel Proximity to Private Oyster Leases

4 AFFECTED ENVIRONMENT

4.1 Overview

Consistent with guidance issued by the Council on Environmental Quality and U.S. Air Force policy, this Supplemental EA focuses specifically on potential impacts relating to the placement of dredged material at the ocean disposal site, Atlantic sturgeon, bald eagles and recent initiatives to control the invasive grass, Common Reed (*Phragmites australis*). These issues did not exist when the original EA was prepared in 2003.

4.2 MPRSA - Dredged Material Characterization

To ensure the Proposed Action's dredged material is suitable for placement at NODS, sediment and site water samples from ten discrete locations within the project's dredging footprint were collected (see Figure 7). Samples were used to generate five composite samples for analysis of sediment and standard elutriate chemistry and ecotoxicological testing in accordance with Section 103 of the MPRSA. Reference sediments were also collected, evaluated, and used for comparison to the Proposed Action's sediment. Reference samples were evaluated simultaneously with the project's dredged material. Reference sediments were collected at an EPA approved location at Willoughby Bank located south of the Thimble Shoals Channel. The reference location was selected as a comparison to the Proposed Action's sediments with a high proportion of silt and clay.

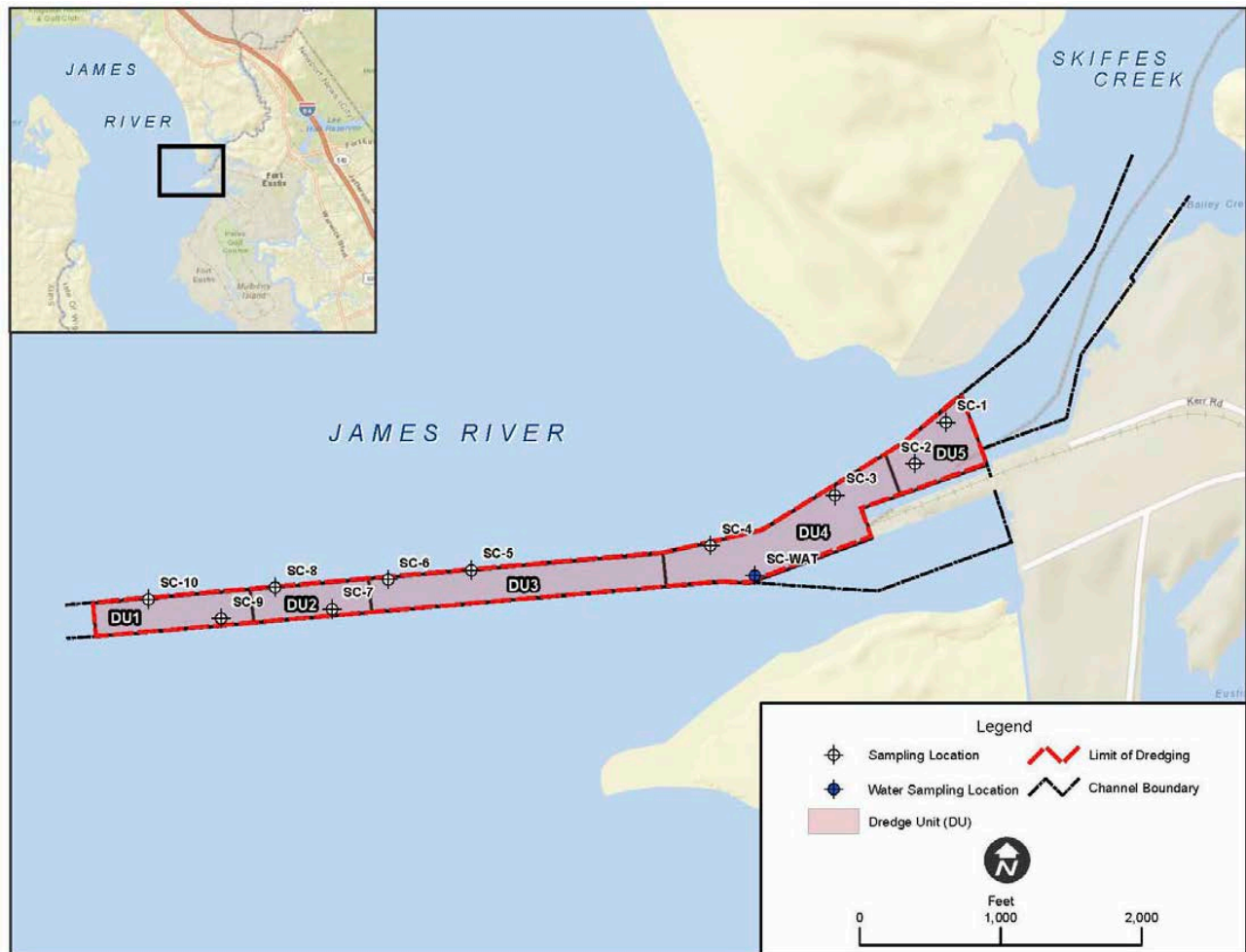


Figure 7 Skiffes Creek Channel Dredged Material Sampling Locations

4.2.1 Applicable Regulations and Testing

Ocean dredged material placement is regulated under Section 103 of the MPRSA of 1972 (Public Law 92-532). The law states that any proposed placement of dredged material into ocean waters must be evaluated through the use of criteria published by the EPA in Title 40 of the Code of Federal Regulations, Parts 220-228 (40 CFR 220-228). The primary purpose of Section 103 of the MPRSA is to limit and regulate adverse environmental impacts of ocean placement of dredged material. Dredged material proposed for ocean placement must comply with 40 CFR 220-228 (Ocean Dumping Regulations) and 33 CFR 320-330 and 335-338 (USACE Regulations for discharge of dredged materials into waters of the U.S.) prior to being issued an ocean placement permit. The technical evaluation of potential contaminant-related impacts that may be associated with ocean placement of dredged material is conducted in accordance with 40 CFR 220-228 and the *Ocean Testing Manual* (EPA/USACE 1991). The criteria in 40 CFR Part 227 are used to determine compliance.

The USACE has MPRSA Section 103 permitting authority for ocean disposal of dredged material and must seek and obtain concurrence from the EPA for the proposed ocean disposal. The EPA has the authority to review, approve or disapprove, or conditionally approve the Corps

Section 103 permit for ocean disposal. Federal agencies conducting permitted activities under Section 103 of the MPRSA are not required to obtain and provide certification of compliance with effluent limitations and water quality standards from state or interstate water pollution control agencies in connection with the transport of dredged material for dumping in ocean waters beyond the territorial sea (33 CFR 324.3(b)(2)).

The Proposed Action's dredged material was evaluated for water column impacts and benthic impacts in four specific cases to comply with the Limiting Permissible Concentration (LPC) (as defined in 40 CFR 227.27):

1. Water quality criteria compliance (liquid phase)
2. Water column toxicity compliance (liquid and suspended particulate phase)
3. Benthic toxicity (solid phase)
4. Benthic bioaccumulation

The USACE has evaluated the need for ocean dumping consistent with 40 CFR Part 227 Subpart C. Materials from previous maintenance dredging of Skiffes Creek Channel have been placed upland at the Fort Eustis Dredge Material Management Area (FEDMMA). The FEDMMA is currently at capacity and will require new construction to build future capacity. The FEDMMA site construction is scheduled for fiscal year (FY) 2015.

Upland placement at privately-owned upland facilities (such as Port Tobacco at Weanack-Shirley Plantation) and upland landfill disposal were both considered as placement options for the dredged material from the Skiffes Creek Channel. The dredged material meets the Proposed Virginia Exclusionary Criteria requirements for upland placement at Port Tobacco at Weanack, the requirements for upland placement at some regional landfills, and the requirements for ocean placement at the NODS. Upland dredged material placement capacity is limited in the southern Virginia region and is preferential for projects with contaminated sediments that cannot meet the requirements for ocean or open-water placement.

Beneficial use (ex., beach nourishment and shoreline stabilization) was also considered as a placement option for the dredged material from Skiffes Creek Channel. The dredged material from the project site is primarily comprised of fine-grained silts and clays that are not suitable for many beneficial use projects, particularly in high-energy environments. Additionally, beneficial uses may be constrained by the large volumes associated with the Skiffes Creek Channel dredging.

In addition to the NODS, another alternative identified to be feasible for dredged material placement of sediments from the Skiffes Creek Channel was Craney Island Dredged Material Management Area (CIDMMA). Dredged material from the Skiffes Creek Channel is precluded from placement at CIDMMA because CIDMMA is restricted to placement of material from dredging to support navigation in Norfolk Harbor and adjacent waters. Material from non-navigation transportation projects or projects beyond CIDMMA's geographic service area are specifically precluded from placement at CIDMMA unless the material is clean and needed for dike construction. Physical and chemical testing of the dredged material from the Skiffes Creek Channel indicated that the sediments would not be suitable for dike construction at CIDMMA.

Therefore, because of the need to reserve limited upland disposal capacity within the region for future projects with contaminated sediment, because the Skiffes Creek Channel material meets the ocean placement criteria, and because that material is not located within the geographic area approved for placement at CIDMMA nor is the dredged material suitable for dike construction at CIDMMA, placement of the dredged material at the NODS is the most viable option. Following the guidance in the *Ocean Testing Manual* (USEPA/USACE 1991), Tier II and Tier III testing was completed by examining physical and chemical properties of the sediment, water column and whole sediment bioassays, and bioaccumulation potential (tissue chemistry) (EA 2014). Because the material meets the ocean placement requirements and because the NODS has sufficient capacity for the material, the most viable option for the dredged material from Skiffes Creek Channel is ocean placement at the NODS. Ocean placement of the dredged material from Skiffes Creek Channel will reserve upland placement capacity for contaminated sediments and will be protective of the resources at the NODS.

4.2.2 Evaluation of the Liquid Phase – Water Quality Criteria (WQC)

Five standard elutriates were prepared from composite samples from each dredging unit. Standard elutriates were tested for each chemical constituent to determine compliance with applicable Federal water quality criteria and the LPC for the liquid phase dredged material in 40 CFR 227.6 and 227.27.

4.2.3 Evaluation of the Liquid and Suspended Particulate Phases – Water Column Bioassay

Water column bioassays were conducted using the following three water column species: *Mytilus galloprovincialis* (blue mussel), *Americamysis bahia* (opossum shrimp), and *Menidia beryllina* (inland silverside). The water column species were exposed to a series of standard dilution of elutriates (100, 50, 10, and 1 percent) created from project dredged material. The opossum shrimp and inland silverside tests were measured for effects to organism survival and blue mussel tests measured development effects to embryos. Test survival or effects results from each dilution series were used to calculate LC50/EC50. Dredged material must meet the toxicity threshold of 0.01 of the LC50/EC50 within 4-hours or at the site boundary.

4.2.4 Evaluation of the Solid Phase – Whole Sediment Bioassay

Ten-day whole sediment bioassays were conducted on dredged material to determine benthic toxicity using two benthic species: *Leptocheirus plumulosus* and *Ampelisca abdita*. The tests were static, non-renewal tests with ten days of exposure to the dredged material and overlying water. Tests measured survival of test organisms in dredged material compared to survival in the reference sediments. To meet the LPC for the solid phase the bioassay organisms in the dredged material must not exhibit mortality that is statistically greater than in the reference sediment and exceeds mortality in the reference sediment by at least 20%.

4.2.5 Evaluation of the Solid Phase – Bioaccumulation Evaluation

Twenty-eight day bioaccumulation tests were conducted on the solid phase dredged material using two sensitive benthic marine organisms: *Nereis virens* (polychaete) and *Macoma nasuta* (blunt nose clam). The bioaccumulation tests measured the potential for bioaccumulation of contaminants

in organism tissue as a result of exposure to the Skiffes Creek Channel dredged material. Tests on organisms were also exposed to reference sediments. Dredged material bioaccumulation tests are compared to reference sediment bioaccumulation tests and are compared to U.S. Food and Drug Administration (FDA) Action Levels. When bioaccumulation of contaminants in dredged material tests exceeds that in the reference sediments, general risk based factors must be assessed to determine compliance with 40 CFR 227.13.

USEPA required a subset of the organism tissue exposed to Skiffes Creek Channel dredged material to be analyzed for lipids and moisture content and the following constituents of concern: metals, PAHs, PCBs, dioxin and furan congeners, and chlorinated pesticides (DDT series only). The constituents selected for analyses in organism tissues samples were determined on constituent detections in the project's sediment chemistry analyses. Pre-test and reference sediment organism tissue were also analyzed.

4.3 FEDMMA Maintenance Activities – Control of Common Reed

One element of maintenance at the FEDMMA is control of common reed (*Phragmites australis*) through the application of glyphosphate and imazpyr herbicides by certified applicators within label specifications. Common reed is a highly invasive grass that grows in large, monotypic stands in freshwater wetlands and in brackish wetlands where salinity is low enough. One of the largest stands of Common Reed on Fort Eustis is in the FEDMMA. It is estimated this plant currently occupies over 600 acres of the installation. It grows in wet open areas such as marshes, floodplains, drainage ditches, lake edges, disturbed areas and dredge spoil areas. It outcompetes native wetland vegetation drastically impacting these habitats. Loss of native vegetative communities eliminates normal biological functioning of wetlands. These thick dense stands are unsuitable for most native wildlife in that movement and access to water becomes greatly restricted. Furthermore, there is little value as food to native wildlife.

Since 2011, aggressive action has been taken to bring this plant under control to alleviate its impacts on the natural environment. Both herbicidal and physical techniques have been used on 300 acres containing Common Reed including that within the FEDMMA. In accordance with the INRMP and Invasive Species Management Plan, Fort Eustis will continue implementation of control methods as available resources dictate. This includes controlling this plant in the FEDMMA and surrounding area.

4.4 Protected Species

4.4.1 Atlantic Sturgeon

The Atlantic Sturgeon (*Acipenser oxyrinchus*) may be present in the project area based on data from the VDGIF Biota of Virginia Report (see Appendix D “Threatened and Endangered Species Lists” for detailed table listings.) Informal Section 7 consultations regarding the incidence of Atlantic sturgeon within the area of the Proposed Action was submitted to the National Marine Fisheries Service (NMFS) in March 2012 and May 2013 with the recommendation of insignificant adverse effect on Atlantic Sturgeon. The May 2013 informal consultation was initiated to coordinate potential effects to listed species from mechanical dredging methods and dredged material transit and placement at the NODS. The site is not in an area where spawning is known to occur. Small juveniles are not likely using the area, but adults

and sub-adults may transit the project area during migration or to forage. No injuries or mortalities of Atlantic Sturgeon have been reported for the James River as a result of dredging operations. NMFS concurred with the insignificant adverse effect conclusion in letters on April 17, 2012 and June 27, 2013 (see Appendix A “Agency Coordination”).

The Norfolk District initiated formal consultation with NMFS in May 2012 for maintenance dredging of Chesapeake Bay navigation channels, sand borrow for beach nourishment projects, and dredged material placement operations at authorized Chesapeake Bay and ocean dredged material placement sites. The NMFS provided a biological opinion dated October 16, 2012 (F/NER/2012/01586) regarding use of the NODS. “Because any effects to whales are extremely unlikely to occur, all effects to whales are discountable. As such, we have determined that the proposed action is not likely to adversely affect right, humpback or fin whales. These species will not be considered further in this Opinion.” Additionally, NMFS concluded, “For purposes of this consultation, we consider that sediment that is suitable for ocean disposal would not be toxic to marine life and would not be likely to cause adverse effects to sea turtles, Atlantic sturgeon or their prey. Because the material to be disposed will be tested to ensure it is not acutely toxic and will not increase the risk of bioaccumulation of toxins or contaminants in any marine species, effects to sea turtles and Atlantic sturgeon will be insignificant and discountable.”

4.4.2 Bald Eagle

The bald eagle was listed as endangered throughout the United States in 1978 (43 FR 6233). It was subsequently downlisted to threatened in 1995 (50 CFR Part 17) when the Chesapeake Bay bald eagle recovery population met its population and productivity objectives (USFWS 1990, 1995). The bald eagle was removed from the Federal ESA on 8 August 2007; however, it remains protected under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA), as well as Commonwealth of Virginia laws and regulations. The BGEPA and the MBTA continue to protect bald eagles from a variety of harmful actions and impacts.

The first recorded eagle nest at Fort Eustis was documented in 1987 (NN8701) and became inactive in 2003. It was located along the James River shoreline near Marshy Point and was situated in a large loblolly pine in an area of scattered large pines and hardwoods. Another nest was built in the area west of the original nest in 2002 (NN0201), but fell in 2009. A new nest was found again in 2011 in the original nest tree of NN8701, now NN1001 and remains active. The area has been secured from disturbance and an Eagle Management Area (EMA) has been established.

The second recorded nest, first discovered in 1996, was reported active in 1998 along Jail Creek near the southern tip of Mulberry Island. An EMA was immediately established around it. No young were produced in that nest. After 1998 it remained inactive for 4 years and fell from the tree in 2002. The tree is now dead. The nest was surrounded by expansive marshland designated as an impact area. Although activity is no longer restricted around that nest site, there is little disturbance due to its isolated location.

Another nest was located in 2003 along Jail Creek. Its location is just northwest of the site of the 1996/98 nest but it is not active. A newer nest was constructed in 2004 in a location just southeast of this site on the same island (NN0401), but fell in 2009. Nest NN0301 became active once again in 2009 and remains active. Two more recent nests were discovered in the impact area just west of Curtis point and along the Warwick River (NN0801 and NN0802). A fifth nest was found in 2009 and was active, but portions of the nest fell prior to nesting season completion and remained inactive during the 2009 nesting season. However, this nest is now active. EMAs have recently been delineated around these five nests.

A sixth nest was discovered in Training Area 17C, near Blows Creek (NN0601) in 2006. This nest was considered a Bird Airstrike Hazard (BASH) for Felker Army Airfield and was removed under permit in 2010. A new nest was built 150' south of the original nest and was active. The nest was again removed in 2011 under permit. Mitigation measures have been employed to prevent new nests from that area and a programmatic permit is being discussed with US Fish and Wildlife Service (USFWS). These nests also have designated EMAs. During this time, another nest was built within 100' of the original nest and is currently active.

The seventh nest (NN0503) was found in 2009 northwest of Third Port on a portion of land owned by DOD, but is not utilized by military units. This nest remains active. A potential disturbance for two nests (NN0601 and NN1001) is the over flight by aircraft, because the nests are within the airfield approach and training zones. A former threat to the nests near Marshy Point was falling steel shot from a nearby duck blind. However, in the summer of 2003, the blind was abandoned and dismantled after coordination with the USFWS and consultation with the duck blind owner. In general, the nests are relatively secure at these locations due to the surrounding marsh and forested shoreline, the impact zone restrictions, and the limited access for training and other human activities.

In 2008, Fort Eustis in conjunction with the USFWS prepared a Bald Eagle Management Plan. The Plan was updated in 2013 as part of the revised Fort Eustis Integrated Natural Resources Management Plan (INRMP). In conjunction with this revision, a map depicting all currently known active bald eagle nest sites was prepared (Figure 8). The Bald Eagle Management Plan includes protection of nest trees throughout the year and implements a 660-foot exclusionary buffer around the nest tree during the breeding season (December 15-July 15). This information allows planners, decision-makers and training managers to meet mission requirements while mitigating impacts to nesting bald eagles and their young. Based on this information, only one nest was located in relative proximity to the dredging area of Skiffes Creek. The distance relationship between this nest and the project area is shown in Figure 9. The dredging project is well outside of the 660-foot eagle nest buffer.

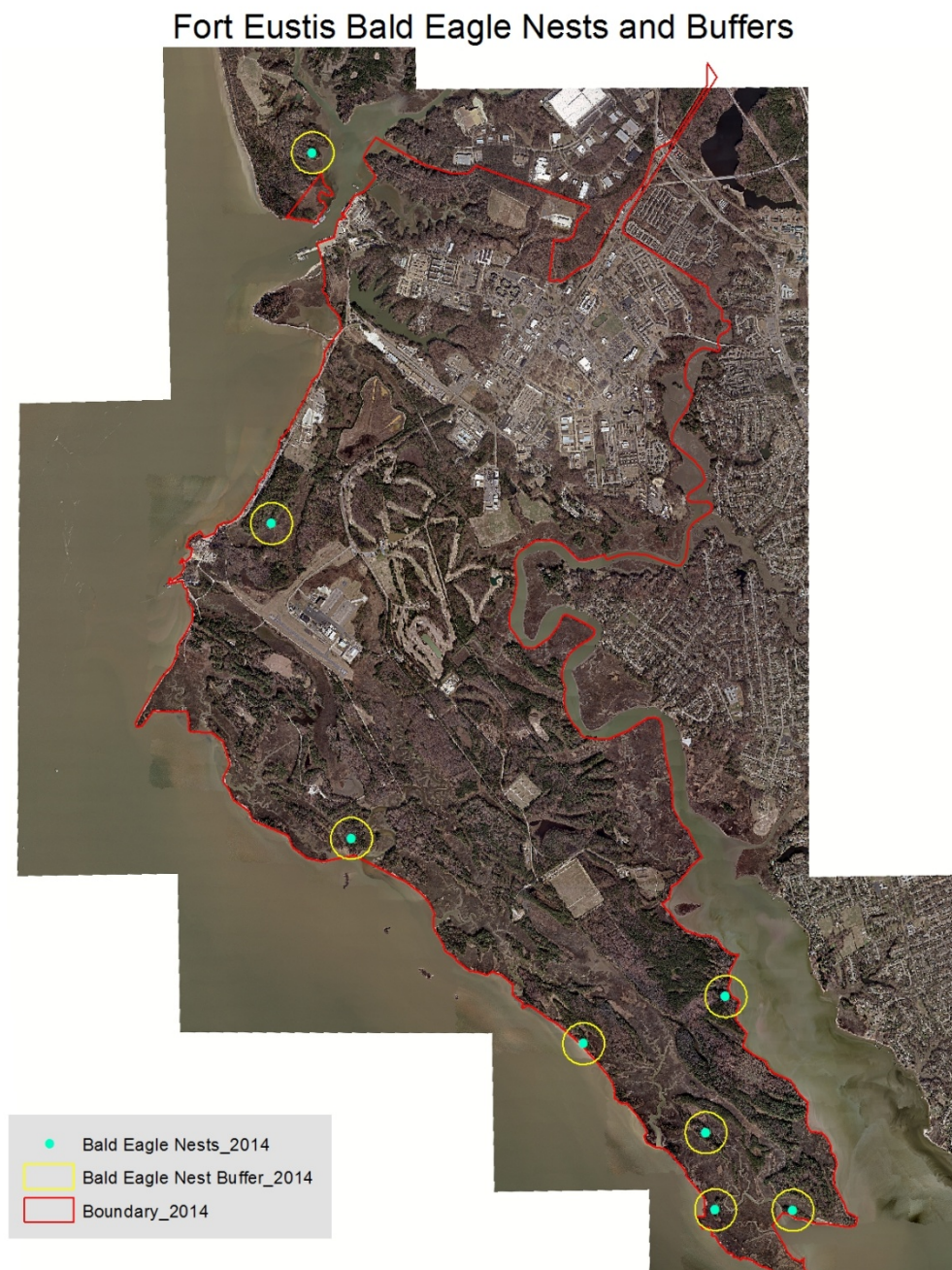


Figure 8 Bald Eagle Nest Sites at Fort Eustis

Skiff's Creek Dredging Distance From Bald Eagle Nest and 660' Buffer



Figure 9 Bald Eagle Nest Site in Vicinity of Dredging Operations

5 ENVIRONMENTAL CONSEQUENCES

5.1 Overview

This section describes the environmental consequences of implementing the proposed dredging of Skiffes Creek channel and the associated placement of dredge material in the FEDMMA.

5.2 MPRSA- Dredged Material Characterization

5.2.1 Proposed Action

Samples from the project site were collected and analyzed as described in section 4.2. No petroleum or other obvious pollution was observed during sample collection. The evaluation process for ocean disposal emphasizes the potential biological effects, rather than chemical presence of contaminants (EPA/USACE, 1991). Tier II and Tier III evaluations were conducted on the Proposed Action's dredged material. The sediments consisted predominantly of alluvial silts and clays with embedded sands and do not meet exclusion criteria. The MPRSA provides for exclusions to testing if the dredged material consists of the following:

1. Predominantly sand, gravel, or rock and is found in areas of high current or wave energy.
2. Dredged material is for beach nourishment.
3. When the dredged material is substantially the same as the substrate at the proposed disposal site and the material is far removed from known existing and historical sources of pollution.

Tier II investigations typically consist of sediment, water, and elutriate chemistry evaluations. Tier III investigations typically consist of appropriate water column and whole sediment bioassays on appropriate sensitive organisms to determine the potential for significant effects due to acute toxicity or bioaccumulation of constituents in the dredged material over a sufficient period of time.

Dredged material proposed for ocean disposal is required to comply with the LPC (as defined in 40 CFR 227.27) for water column impacts and benthic impacts in four specific cases:

1. Water quality criteria compliance (liquid phase).
2. Water column toxicity compliance (liquid and suspended particulate phase).
3. Benthic toxicity (solid phase).
4. Benthic bioaccumulation.

Summary tables of the evaluation results can be found in Appendix C "MPRSA, Section 103 Evaluation"

The Corps of Engineers will be requesting an independent evaluation from the U.S. Environmental Protection Agency (USEPA) and concurrence with the Corps determination.

5.2.1.1 Evaluation of the Liquid Phase – Water Quality Criteria (WQC)

Compliance with the LPC was determined using the USACE Short-Term Fate of Dredged Material Disposal in Open Water (STFate) model to determine whether the liquid phase dredged material would achieve WQC within the site boundary and/or within 4-hours following dredged material placement. Ammonia had the greatest concentration (Dredging Unit SC-07/08 and SC-09/10, $\text{NH}_4 = 20 \text{ mg/l}$; WQCacute, $\text{NH}_4 = 4.91 \text{ mg/l}$) and was the only constituent that exceeded WQC requiring a 4.1-fold dilution to meet the WQC. The STFate modeling indicated that a 361-fold dilution would occur in the first four hours.

Based on the information above, the liquid phase of the dredged material meets the LPC and is in compliance with 40 CFR 227.6(c)(1) and 227.27(a)(1).

5.2.1.2 Evaluation of the Liquid and Suspended Particulate Phases – Water Column Bioassay

A total of five water column bioassays were conducted on dredged material representative of each dredging unit. The greatest dilution required to meet the toxicity threshold was for dredging unit SC-01/02. The STFate model assumed a 4,600 cy placement/barge volume at the center of NODS. Results of the STFate model indicated that a 16-fold dilution can be achieved within 1-hour following placement and a 449-fold dilution would occur within 4-hours following placement. The leading edge of the plume was estimated to travel approximately 4,173 feet from the placement location within the 4-hours following placement. As a result the maximum volume that may be discharged in a single event during a 4-hour period from dredging unit SC-01/02 is 4,600 cy to comply with the LPC. Dredging unit SC-07/08 required the smallest dilution to meet the toxicity threshold estimating a dilution of 361 to 1 in the 4-hour period following placement. The maximum volume that may be discharged in a single event during a 4-hour period for dredging unit SC-07/08 is 6,800 cy. Dredged material discharge volumes at or below the STFate established maximum volumes for each dredging unit will ensure LPC compliance within the 4-hour period following the placement event and will comply within the site boundary.

Based on the information, the liquid and suspended particulate phase dredged material meets the LPC and complies with 40 CFR 227.6(c)(2) and 227.27(b).

5.2.1.3 Evaluation of the Solid Phase – Whole Sediment Bioassay

A total of five whole sediment bioassays were conducted on dredged material representative of each dredging unit. Mortality in the dredged material whole sediment bioassays is not statistically greater than in the reference sediment and does not exceed the mortality in the reference sediment by 20%. Therefore, the dredged material meets the LPC for benthic toxicity in 40 CFR 227.13(c)(3).

5.2.1.4 Evaluation of Solid Phase – Bioaccumulation Evaluation

None of the tissues samples analyzed in Skiffes Creek Channel dredged material exceeded FDA action levels. Only two constituents, nickel and octachlorodebenzodioxin (OCDD) statistically exceeded the reference site and pre-test tissue concentrations. The mean nickel concentration in clam tissue from dredging units SC-05/06 and SC-09/10 statistically exceeded the mean reference

sediment and pre-test tissue concentrations; however the upper confidence level of the mean did not exceed the USEPA Region 4 background concentration for nickel. OCDD is the least toxic dioxin congener, and the dioxin toxicity equivalence quantity (TEQ) did not statistically exceed the reference sediment TEQ for either sample locations.

Determining compliance with the LPC for benthic bioaccumulation considers at least one of the following factors; number of constituents that statistically exceed reference sediment results, magnitude by which the constituent exceeds reference sample, propensity of the constituent for significant bioaccumulation, toxicological importance of the constituent, and comparison to USEPA Region IV background concentrations for clam tissues. After consideration of various factors, the USACE has determined that dredged material placement at the NODS will not result in ecologically significant bioaccumulation for the individual contaminants.

Based on the above information, the solid phase of the dredged material complies with 40 CFR 227.6(c)(3) and 227.27(b).

5.2.2 No-Action Alternative

Under the No-Action Alternative the Proposed Action would not occur; therefore, there would be no changes to the existing conditions.

5.3 FEDMMA Maintenance Activities – Control of Common Reed

5.3.1 Proposed Action

Maintenance activities at the FEDMMA are necessary to maintain the upland placement site for dredged material placement. Dike construction within the site footprint to build additional capacity will occur to maximize the life of the site. Maintenance activities to control common reed are important to drying of the dredged material and maximizing consolidation of dredged material. Common reed grows in dense stands that hamper dewatering of the site. The Common Reed stand within the FEDMMA was originally treated in 2004 with glyphosate herbicide and with imazypur herbicide in 2011. Herbicide treatment remains the only viable option for controlling this plant in the FEDMMA (prescribed burning is not feasible nor is excavation). Herbicides will continue to be applied by certified applicators within label rates. Placement of dredge material several months after the proposed treatment is not expected to impact efficacy.

5.3.2 No-Action Alternative

Under the No-Action Alternative the Proposed Action would not occur; therefore, there would be no changes to the existing conditions, common reed would continue to dominate the site and continue to impact existing wetland sites on Fort Eustis.

5.4 Protected Species

5.4.1 Proposed Action

5.4.1.1 Atlantic Sturgeon

On 6 April 2012 all U.S. populations of Atlantic sturgeon became subject to the Endangered Species Act. At that time, five (5) Distinct Population Segments (DPS) were listed as

endangered. Any Atlantic sturgeon originating from these populations could occur in the James River which borders Fort Eustis. Chesapeake Bay DPS are thought to spawn in upstream areas of the James River. Because Third Port is located near the confluence of Skiffes Creek with the James River, Atlantic sturgeon may be in or around the dredge site during dredging activities. Likewise, Atlantic sturgeon may be present at the ocean placement site during dredged material placement activities. However, the sturgeon will likely have the ability to relocate during dredging and dredged material placement operations to avoid any direct physical impacts. The Corps of Engineers has completed informal and formal consultations with NMFS under Section 7 of the Endangered Species Act for actions described in this SEA. In a May 17, 2012 letter, NMFS concurred with the Corps determination that the maintenance dredging project is not likely to adversely affect any listed species under NMFS jurisdiction. In the Oct 16, 2012 Biological Opinion covering dredged material placement operations at NODS, NMFS concluded the disposal activities are not likely to adversely affect sea turtles or Atlantic sturgeon or their prey because the sediment is suitable for ocean disposal and would not be acutely toxic or will not increase the risk of bioaccumulation of toxins or contaminants in any marine species. Therefore, effects to sea turtles and Atlantic sturgeon will be insignificant and discountable. The documents associated with this consultation are included at Appendix E.

5.4.1.2 Bald Eagles

This species is no longer a federally listed species and it was delisted from the Virginia Threatened and Endangered Species list on January 1, 2013. The number of nest sites on Fort Eustis has increased since 2003. Only one nest site is located in any form of proximity and that includes the active nest site in Training Area 30 as shown in Figure 8. In this case, the distance between the dredging and ocean disposal of dredged material and the nest greatly exceeds 660 feet. Consequently, no impact or disturbance to the adults or young is expected. The dredging does not pose any impacts to foraging or movement of this species on the installation. Maintenance activities at the FEDMMA involving the dike construction and control of common reed are not expected to have impact or disturb adult or young Bald Eagles.

5.4.2 No-Action Alternative

Under the No-Action Alternative the Proposed Action would not occur; therefore, there would be no impacts to existing wildlife and aquatic biota.

5.5 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not occur; therefore, there would be no impacts to water quality, wildlife, or aquatic biota at the dredge site or ocean placement site.

5.6 Cumulative Impacts

A cumulative impact is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively

significant actions taking place over a period of time” (40 CFR 1508.7). Table 5.1 provides cumulative impacts by resource that would be expected to occur through the maintenance dredging action assessed in the 2003 EA and in combination with this tiered supplemental assessment addressing the potential environmental effects associated with the proposed transport of dredged material for the purpose of placement at the Norfolk Ocean Disposal Site (NODS).

Table 5.1 Environmental Consequences Summary

Impact	Proposed Action	No Action Alternative
Air Quality	No cumulative impacts would be expected. Maintenance dredging project with no new depths, an authorized placement area, and applicable permits have been secured is considered to have de minimis effects and has specific exclusion under 40 CFR 93.153(c)(2)(ix).	No impact to existing conditions
Noise	No cumulative impacts would be expected.	No impact to existing conditions
Water Resources	No cumulative impacts would be expected.	No impact to existing conditions
Biological Resources	No cumulative impacts would be expected at dredging site or NODS site.	No impact to existing conditions
Protected Species and Critical Habitat	No cumulative impacts would be expected. Combined actions not likely to adverse effect.	No impact to existing conditions
MPRSA Dredged Material Characterization	No cumulative impacts would be expected. Dredged material evaluations do not exhibit acute toxicity or bioaccumulation of trace contaminants.	No impact to existing conditions

6 AGENCY COORDINATION

6.1 Conclusions and Recommendations

Dredging will be accomplished in the most environmentally acceptable and cost-effective manner. Any effects on the environment will be minimized to the greatest extent practicable and be offset by the project benefits of restoring and maintaining safe navigation and commerce. Future maintenance dredging and disposal of sediments from the Skiffes Creek at the NODS will be accomplished in a manner that will not cause long-term adverse effects on the surrounding ecosystem.

Based on this supplemental EA, no significant environmental impacts would result from implementing of the proposed action. Implementation of the proposed action will have no significant direct, indirect, or cumulative effects on the quality of the natural or human environment.

6.2 Comments Received on Draft SEA (May 2014)

Virginia Department of Historical Resources (VDHR):

Comment: VDHR responded via a letter dated May 20, 2014 that they had received the Draft Supplemental Environmental Assessment. VDHR in consultation with the U.S. Department of the Air Force, Fort Eustis and its agents regarding this project have reached a consensus that the Skiffes Creek Federal Navigation Channel maintenance dredging project will result in *no adverse effect* on historic properties. VDHR has no further comment at this time.

Corps Response: *The Corps concurs with VDHR determination that the project will result in no adverse effect on historic properties.*

Virginia Marine Resources Commission (VMRC):

Comment: VMRC responded via an email dated May 7, 2014 that received the request for comments for authorization to maintenance dredge the Skiffes Creek Federal Navigation Channel at Fort Eustis, in the City of Newport News, VA. The dredge area is within the Congressionally approved project channel and turning basin and that the spoil will be placed at the Norfolk Ocean Disposal Site (NODS), therefore no authorization is required from VMRC for this project.

Corps Response: *The Corps concurs with the VMRC determination that no authorization is required from VMRC for this project.*

Virginia Department of Game and Inland Fisheries (VDGIF):

Comment: According to our records, federal Endangered Atlantic sturgeon have been documented from the project area. Therefore, we recommend coordination with NOAA Fisheries regarding protection of this species.

Corps Response: *The Corps initiated informal consultation with the National Marine Fisheries Service(NMFS) regarding Atlantic sturgeon in March 2012 regarding maintenance dredging activities in Skiffes Creek Channel and again in May 2013 regarding mechanical dredging and dredged material placement at the Norfolk Ocean Disposal Site (NODS). NMFS concurred with the not likely to adversely adverse effect conclusion in letters on April 17, 2012 and June 27, 2013 concluding Section 7 consultation.*

Comment: Skiffes Creek and the James River have been designated Anadromous Fish Use Areas. Therefore, we recommend that all dredging in this area adhere to a time of year restriction from February 15 through June 15 of any year.

Corps Response: *The Corps does not concur with the recommended Time of Year (TOY) restriction for any dredging from February 15 to June 15 of any year. The transport of dredged material for the purpose of placement in the territorial sea at the Norfolk Ocean Disposal Site (NODS) will avoid any significant in-stream effects in state waters including passage of anadromous fishes. The Corps appreciates the VDGIF's role as an advisory agency. However, the Corps has conducted studies and substantial monitoring in coordination with the VDGIF concerning fish passage in relation to dredging and dredged material placement activities. These studies have indicated that dredging does not deter the movement of anadromous fishes. Provided that the dredged material placement occur at the NODS, the Corps believes the recommended time of year restriction to be unwarranted for the dredging activity itself.*

Comment: We also document bald eagle nests from the project area and this site appears to be located within the James River Summer and Winter Bald Eagle Concentration Zone. Significant habitat alteration, location of water dependent facilities within concentration zones, or other recreational and commercial activities may result in adverse impacts upon eagles. Therefore, we recommend that the applicant ensure that this project is consistent with state and federal guidelines for protection of bald eagles; and that he coordinate as indicated with us or with U.S. Fish and Wildlife Service regarding possible impacts upon bald eagles or the need for a federal bald eagle take permit.

Corps Response: *The Corps will ensure the project is consistent with state and federal guidelines. Maintenance dredging of the channel is well outside of established buffers of known bald eagle nesting sites around the project area. Your comment is noted concerning recommended coordination for possible impacts or for the need for a federal bald eagle take permit.*

Comment: This project is located within 2-miles of a documented occurrence of a state or federal threatened or endangered plant or insect species and/or other Natural Heritage coordination species. Therefore, we recommend coordination with VDCR-DNH regarding the protection of these resources.

Corps Response: *VDCR-DNH has reviewed the scope of this project and commented that "Biotics documents the presence of natural heritage resources in the project area. However, due to the scope of the activity and the distance to the resources, we do not anticipate that this project will adversely impact these natural heritage resources."*

Comment: We recommend adherence to erosion and sediment controls during dredging and placement of dredged materials.

Corps Response: *Erosion and sediment controls and best management practices will be applied to maintenance activities involving upland soil disturbance at the Fort Eustis Dredged Material Management Area (FEDMMA). However, erosion and sediment controls do not have practicable application to the dredging process or dredged material placement at the Norfolk Ocean Disposal Site (NODS).*

Virginia Department of Environmental Quality (VDEQ):

Comment: Petroleum Storage Tanks Cleanups: No Comments.

Comment: Petroleum Storage Tank Compliance/Inspections: No comments.

Comment: Virginia Water Protection Permit Program (VWPP): As described in the submitted information, specifically, correspondence from the U.S. Army Corps of Engineers (Corps) dated February 11, 2014, the project qualifies for a 13-RP-02 on which DEQ has provided § 401 Certification. Therefore, a Virginia Water Protection Permit (VWP) will not be required by the DEQ for this project. If the project scope changes or if it is determined that the project no longer qualifies for a Nationwide or Regional Permit from the Corps, a permit or waiver from DEQ may be required.

Corps Response: *Noted.*

Comment: Air permit program: No comments.

Comment: Water permit program: No comments.

Comment: Groundwater program: No comments.

Comment: Waste Permit Program: No comment if the spoils are going to be disposed of at the NOD. However, if disposal is anticipated to be at a regional solid waste landfill further characterization in accordance with the Virginia Hazardous Waste Management Regulations and a special waste disposal request will be required.

Corps Response: *Noted.*

Virginia Department of Conservation and Recreation (VDCR):

Comment: The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

Biotics documents the presence of natural heritage resources in the project area. However, due to the scope of the activity and the distance to the resources, we do not anticipate that this project will adversely impact these natural heritage resources.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Corps Response: *The Corps concurs with VDCR that the project is not anticipated to adversely impact natural heritage resources or State Natural Area Preserves under VDCR's jurisdiction.*

Hampton Roads Planning District Commission (HRPDC):

Comment: Pursuant to your request, the staff of the HRPDC has reviewed the Draft Supplemental Environmental Assessment and Consistency Determination for the following project, Skiffes Creek Federal Navigation Channel, Maintenance Dredging, in the City of Newport News. We have consulted with City staff regarding this project.

Based on this review, the proposal appears to be consistent with local and regional plans and policies.

Corps Response: *Noted.*

7 REFERENCES

Collins, M.A. 1995. *Dredging-Induced Near-Field Resuspended Sediment Concentrations and Source Strengths*. U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS.

EA Engineering, Science, and Technology, Inc. 2013. *Evaluation of Dredged Material, Skiffes Creek Channel, Fort Eustis, Newport News, Virginia, Sampling and Analysis Plan*. Prepared for USACE – Norfolk District. October.

NOAA - National Marine Fisheries Service, 2012. *Maintenance of Chesapeake Bay Entrance Channels and use of sand borrow areas for beach nourishment*. National Marine Fisheries Service, Northeast Region, Gloucester, MA.

U.S. Army Corps of Engineers. 1986. *Technical Notes; Guide to Selecting a Dredge for Minimizing Resuspension of Sediment*. Waterways Experiment Station, Vicksburg, MS.

U.S. Army Corps of Engineers, 2003. *Final Environmental Assessment for the Maintenance Dredging of the Skiffes Creek Channel and the MARAD Facility Access Channel*. U.S. Army Corps of Engineers, Norfolk District, Norfolk, VA. January 2003.

U.S. Army Corps of Engineers. 2012. *Biological Assessment for the Potential Impacts to Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus) Resulting from the Maintenance Dredging of Atlantic Ocean Channel and Thimble Shoals Channel and Use of Designated Overboard Dredged Material Placement Sites*. Norfolk, VA.

USEPA/USACE. 1995. *QA/QC Guidance for Sampling and Analysis of Sediment, Water, and Tissue for Dredged Material Evaluations*. EPA-B-95-001.

USEPA/USACE. 1991. *Evaluation of Dredged Material Proposed for Ocean Disposal, Testing Manual* (commonly called “The Green Book”).

USEPA/USACE. 1998. *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual (ITM)*. EPA-823-B-98-004, Washington D.C.

USEPA/USACE. 2009. *Site Management Plan for the Norfolk Ocean Dredged Material Disposal Site (NODS)*. U.S. Environmental Protection Agency, Region 3, Philadelphia, PA.

8 CONTACT INFORMATION

If you have any questions or wish to provide comments, please contact Mr. Robert Pruhs of the U.S. Army Corps of Engineers, Norfolk District, at Robert.S.Pruhs@usace.army.mil or 757-201-7130.

APPENDIX A

PERMITS



Reply to
Attention of

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1096

FEBRUARY 11, 2014

Western Virginia Regulatory Section
NAO-2003-3339 (VMRC 12-0753) (Skiffes Creek)

Fort Eustis Director of Public Works
Ms. Robin D. Mills
1407 Washington Blvd
Fort Eustis, VA 23604

Dear Ms. Mills:

This is in reference to the continued maintenance dredging by mechanical or hydraulic means (cutter head discharge pipe than 24 inches) that was authorized by 08-RP-19 on July 3, 2012, and that verification is incorporated by reference. The maintenance dredging continues to meet the terms and conditions of the new 13-RP-02, attached. Provided that you follow the general and special conditions of 13-RP-02, as well as any additional conditions that have been included below; no further authorization will be required from the Corps.

This verification also includes the use a mechanical dredge and to place the material at the following sites: Shirley Plantation (Weanack), Big Bethel Landfill, Charles City Landfill and/or Clearfield MMG, Inc. facilities.

Please note that 13-RP-02 requires that the permittee must advise Norfolk District in writing at least two weeks before each maintenance dredging activity is undertaken so that regulatory staff may inspect the intended placement areas. The Norfolk District must approve dredged material placement areas before use.

Special Conditions:

As required by 13-RP-02, an after dredge hydrographic survey, prepared by a state-certified engineer or surveyor, shall be provided within 30 days completion of each dredging event.

Enclosed is a "compliance certification" form, which must be signed and returned within 30 days of completion of each dredging event. Your signature on this form certifies that you have completed the work in accordance with the regional permit terms and conditions.

Activities authorized under this RP must be completed by August 14, 2018. If this RP is reissued at that time, and if this work has not been started or completed, but the project continues to meet the terms and conditions of the revalidated RP, then the project will continue to be authorized. The Corps will issue a special public notice announcing any changes to the Regional Permits when they occur; however, it is incumbent upon you to remain informed of changes to the RPs. Activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon this RP that do not meet the terms and conditions of the revalidated RP will remain authorized provided the activity is completed within twelve months of the date of this RP's expiration (i.e. August 14, 2019), unless discretionary authority has been exercised on a case-by-case basis to modify, suspend, or revoke the authorization in accordance with 33 CFR Part 325.7(a-e). If work cannot be completed by August 14, 2019, you must reapply for separate permit authorization in order to meet current permit criteria.

The State Water Control Board provided **unconditional** §401 Water Quality Certification for this RP. Therefore, the activities that qualify for this RP meet the requirements of Department of Environmental Quality's (DEQ) Virginia Water Protection Permit Regulation, provided that the permittee abides by the conditions of this RP. You will not be required to obtain a separate 401 Water Quality Certification from DEQ. However, a permit may be required from the Virginia Marine Resources Commission and/or your local wetlands board. Please note that you should obtain all required State and local authorizations before you proceed with the project. This authorization does not relieve your responsibility to comply with local requirements pursuant to the Chesapeake Bay Preservation Act (CBPA), nor does it supersede local government authority and responsibilities pursuant to the Act. You should contact your local government before you begin work to find out how the CBPA applies to your project. Pursuant to the Coastal Zone Management Act (CZMA) of 1972, the Virginia Department of Environmental Quality Virginia Coastal Zone Management Program (VCP) completed its review of the Federal Consistency Determination (FCD) for this RP on May 10, 2013 and provided concurrence that this RP is consistent with the VCP. Therefore, no further coordination with the VCP is required. Authorizations under this RP do not supersede state or local government authority or responsibilities pursuant to any State or local laws or regulations.

The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions

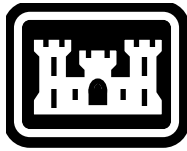
caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

If you have any questions and/or concerns about this permit authorization, please contact me via telephone at (757) 201-7794 or via email at john.d.evans@usace.army.mil

Sincerely,

John Evans
Western Virginia Regulatory Section

Enclosure:
13-RP-02
Compliance certificate



**U.S. Army Corps
Of Engineers**
Norfolk District

Fort Norfolk, 803 Front Street
Norfolk, Virginia 23510-1096

**CENAO-REG
13-RP-02**

REGIONAL PERMIT

Effective Date: August 14, 2013

Expiration Date: August 14, 2018

I. AUTHORIZED ACTIVITIES:

13-RP-02, Regional Permit 2, authorizes both new and maintenance dredging (channels and basins) for certain navigationally-related recreational and commercial dredging projects, by either mechanical or hydraulic method, in navigable waters of the United States. In addition, minor non-navigation related dredging/excavation, and its associated discharges of fill in non-tidal, non-navigable waters is also authorized. This regional permit authorizes these activities within the geographical limits of the Commonwealth of Virginia under the regulatory jurisdiction of the Norfolk District Army Corps of Engineers (Corps), subject to the terms and conditions further set out herein:

1. Maintenance Dredging for Previously Authorized Projects:

- a. Applicants must document that a previous Department of the Army permit was issued in the past for the same project area proposed for maintenance dredging.
- b. Maintenance dredging is limited to the removal of material at a depth no deeper than the current authorized dredge depth.
- c. Areas to be dredged and dredged depths shall not exceed those specified by the most recent Department of the Army permit.

2. New Dredging in Navigable Waters:

- a. The dredging authorized by this permit will not exceed a surface area of two (2) acres calculated by the length of the area to be dredged times the top width of the area to be dredged.
- b. The depth of dredging of access channels shall not exceed controlling depths of ingress/egress.
- c. Channels will have a bottom width of at least 20 feet except where the Corps determines that safe navigation will not be compromised. In those cases, a reduction in the minimum bottom width to 15 feet shall be allowed.
- d. Dredging is limited to areas below mean low water.
- e. No dredging of cobble habitat, intertidal mudflats, wetlands, shellfish beds, or submerged aquatic vegetation is authorized.

3. Maintenance Dredging/Excavation of Non-tidal, Non-Navigable Waters Not Subject to the Exemption Under Section 404(f)(1)(c):

The combined amount of non-navigation related dredge/excavated material and associated discharge of dredge or fill material in wetlands or waters of the United States (including any temporary discharges), cannot exceed 5,000 cubic yards, nor can the combined area of fill and dredge/excavation exceed a surface area of two (2) acres.

II. AUTHORITIES:

The people of the Commonwealth of Virginia are hereby authorized by the Secretary of the Army and the Chief of Engineers pursuant to Section 10 of the River and Harbors Act of 1899 ((33 U.S.C. § 403) and/or Section 404 of the Clean Water Act (33 U.S.C. § 1344) to perform the aforementioned work in tidal and nontidal navigable waters of the United States of the Commonwealth as further described herein and pursuant to the terms and conditions herein.

Activities receiving written authorization under this RP do not require further authorization under the provisions contained in 33 CFR Part 325 unless the District Engineer determines, on a case-by-case basis, that additional review is in the public interest. All work undertaken outside the following conditions, terms, and limitations will require separate Department of the Army authorization.

III. STATE AND LOCAL APPROVALS:

1. Prospective permittees may be required to obtain additional state and/or local approvals prior to commencement of work in waters of the United States from the Virginia Marine Resources Commission (VMRC) and/or the local wetlands board. You may contact the VMRC at (757) 247-2200 and/or local government office for further information concerning permit requirements.
2. The State Water Control Board provided conditional §401 Water Quality Certification for the 13-RP-02. Therefore, the activities that qualify for this RP meet the requirements of Department of Environmental Quality's (DEQ) Virginia Water Protection Permit Regulation, provided that the permittee abides by the §401 Water Quality Certification condition, below, and all of the terms and conditions of 13-RP-02.

§401 Water Quality Certification Condition: For new dredging projects in water body segments on the current effective Section 303(d) Total Maximum Daily Load (TMDL) priority list or water body segments with an approved TMDL, the prospective permittee must ensure that the proposed dredging will not exacerbate impairment of the water body segments and that the dredging is consistent with any waste load allocation, limit, or conditions imposed by an approved TMDL. Information regarding water bodies on the 303(d) priority list and approved TMDL's is available on the Department of

Environmental Quality's website at:

<http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/TMDL/TMDLDevelopment/ApprovedTMDLReports.aspx>.

Maintenance dredging for previously authorized projects are exempt from this requirement provided that:

- a. A permit from the Norfolk District Corps for the initial dredging must have been received for the area proposed for maintenance dredging.
 - b. Maintenance dredging is limited to the removal of material accumulated after the initial authorized dredging.
 - c. Areas to be dredged and dredged depths shall not exceed those specified by the original authorization.
3. Those activities on the Potomac River extending beyond the mean low water line may require authorization by the Virginia Marine Resources Commission (VMRC) and/or the Maryland Department of Natural Resources. Authorization may also be needed from the Tennessee Valley Authority for projects constructed on the Clinch and Holston Rivers.
4. Pursuant to the Coastal Zone Management Act (CZMA) of 1972, the Virginia Department of Environmental Quality Virginia Coastal Zone Management Program (VCP) completed its review of the Federal Consistency Determination (FCD) for this RP on May 10, 2013 and provided concurrence that this RP is consistent with the VCP.
5. Permittees should ensure that their projects are designed and constructed in a manner consistent with all state and local requirements pursuant to the Chesapeake Bay Preservation Act ("the Act") (Virginia Code 10.1-2100 *et seq.*) and the Chesapeake Bay Preservation Area Designation and Management Regulations (9 VAC 10-20-10 *et seq.*).
6. Authorizations under this RP do not supersede state or local government authority or responsibilities pursuant to the Chesapeake Bay Preservation Act, the Virginia Tidal Wetlands Act or to any State or local laws or regulations.

IV. PROCEDURES:

For most projects, prospective permittees must submit an application in accordance with the procedures outlined below and must receive written authorization from the Corps of Engineers before any work may begin. This RP shall not be interpreted as authorizing any work other than which is outlined below and which strictly meet all terms and conditions set out herein. All work undertaken that does not strictly comply with the following terms, conditions, standards and limitations will require separate Department of the Army authorization.

1. If required, applicants shall use the newest version of Joint Permit Applications (JPA), applicants must supply drawings required by the applicable JPA, and must submit such applications to the Virginia Marine Resources Commission (VMRC). A JPA can be

obtained by writing to the District at the above address or telephoning (757) 201-7652. With internet access, an application may also be obtained by downloading a copy at the following link: <http://www.nao.usace.army.mil/Missions/Regulatory/JPA.aspx>. For maintenance dredging projects, a cover letter describing the proposed dredging activity and a copy of any previous Department of the Army permit(s) must be submitted, at a minimum, in order to initiate the permit evaluation for the proposed maintenance project.

2. In addition to the information required in the JPA, the following additional information must be included in the application and/or on the drawings in order for the application to be considered complete:
 - a. The distance of toe of channel from the channelward edge of mudflats and vegetated wetlands.
 - b. The buffer distance (buffer distance = depth of dredging x 4) between the toe of the channel and the wetlands as determined by using the “4X buffer” guidance developed by the Virginia Institute of Marine Science (VIMS) in the Virginia Wetlands Report No. 93-8, entitled “Mid-Atlantic Wetland Compensatory Mitigation Workshop,” pages 7, dated Summer 1993.
 - c. Existing bathymetric depth profile (i.e. depth soundings) referenced to local tidal or geodetic datum.
 - d. Information on the dredged material management site including location maps, drawings, and a description of the methods of transporting the material to the dredged material management site.
 - e. Any structures (i.e. piers, boat lifts) required to provide access to the proposed dredging. (Note: Piers and related structures are not authorized by this letter of permission, but may be authorized in conjunction with the letter of permission under other general permits).
 - f. Copies of previous permits from the Norfolk District for maintenance dredging projects.
3. “Tier 1” or additional testing of the sediment to be dredged may be required to evaluate the potential for contaminants of concern in the dredged material. If testing is required, a sampling and analysis plan shall be submitted to the Norfolk District for approval. Testing results must be submitted to, and approved by, the Norfolk District prior to dredging. The evaluation of dredged material for inland disposal will follow the guidance in the “Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S.- Testing Manual (Inland Testing Manual), dated February, 1998, or the most current version. The manual may be downloaded from the Environmental Protection Agency website: <http://water.epa.gov/type/oceb/oceandumping/dredgedmaterial/testing.cfm>
4. Prospective permittees shall not begin the proposed dredging until notified in writing by the District Engineer that the activity may proceed under this RP, and must follow any additional special conditions imposed by the District Engineer.

V. SPECIAL CONDITIONS:

1. In order to protect vegetated wetlands, a buffer distance of four times the depth of dredging, i.e. “4X Buffer”, must be maintained between the toe of the dredged channel and the channelward edge of the vegetated wetlands. The buffer distance is to be determined by using the guidance developed by Virginia Institute of Marine Science (VIMS) in the Virginia Wetlands Report No. 93-8, entitled “Mid-Atlantic Wetland Compensatory Mitigation Workshop,” pages 7, dated Summer 1993, which explains how to properly obtain the “4X Buffer” distance. This report can be found at the following website: http://ccrm.vims.edu/publications/publications_topics/vwr/vwr-summer93.pdf
2. Dredging will be permitted to a certain depth at mean low water and/or ordinary high water, referenced to local tidal or geodetic datum, as outlined on drawings provided by the applicant. This permitted depth includes any advance maintenance, allowable overdepth, and/or margin of error. Exceeding this depth will be considered a violation of the terms and conditions of the permit. In order to ensure compliance, if a permittee under this RP enters into a contract for this work to be performed; the terms of the contract should specify that the permitted depth cannot be exceeded. The only way to legally dredge deeper is to apply for, and be granted, a permit modification before the dredging occurs. If the requested modifications exceed the terms and conditions of this RP, than an Individual Department of the Army permit will be required. Both the permittee under this RP and any contractor performing work may be subject to substantial fines and penalties for any permit violation.
3. Additional periodic maintenance dredging may be performed until expiration of this regional permit authorization. However, the Norfolk District must be advised in writing by the permittee at least two weeks before each maintenance dredging activity. Maintenance dredging must use the same dredged material disposal site as authorized; if a new disposal site is necessary, a written permit modification is required from the Corps prior to maintenance dredging.
4. All piers, associated structures (e.g., boatlifts, mooring piles, etc.) and vessels, whether existing or proposed under a different permit, will be located outside the channel.
5. Any authorized dredging located adjacent to certain resources (including shellfish beds, submerged aquatic vegetation, and anadromous fish use areas) will require a time of year restriction (TOYR), unless determined unnecessary through additional agency coordination. The TOYR indicates the time of any given year that the authorized dredging cannot be performed in order to protect these resources. The TOYR for these resources are as follows:
 - Shellfish beds: March 1 through September 30
 - Submerged Aquatic Vegetation: March 1 through October 31
 - Anadromous Fish Use Areas: February 15 through June 30
6. All dredged material must be disposed of in a currently approved dredged material disposal site, in an approved upland disposal site, or at the Craney Island Dredged

Material Management Area/Rehandling Basin. Use of dredged material composed of sand may be used for beach nourishment if the beach nourishment qualifies for under RP-19, otherwise the project will require separate authorization. The disposal of dredged material into waters of the United States (including wetlands) is not authorized by this permit, accepted at approved dredged material disposal sites. Currently approved dredged material management sites do not include ocean disposal site; use of ocean disposal must be permitted under separate authorization.

7. If an upland disposal site is to be utilized, the site must be properly designed to contain the material and have proper erosion and sedimentation controls to prevent overtopping and re-entry into the waterway. In addition, the prospective permittee must adequately address the need for liner or impermeable material to prevent leaching of any identified contaminants into ground water.
8. Craney Island Dredged Material Management Area (CIDMMA) and Craney Island Rehandling Basin (CIRB):
 - a. The CIDMMA and/or CIRB may be used if a project meets the requirements for such use (see H.D. 563, 79th Congress, 2nd Session, P.L. 79-525; requirements include specification that work must be related to the development or maintenance of navigation improvements in the port of Hampton Roads. You must receive specific approval in your permit in order to dispose of dredged material at CIDMMA and/or CIRB.
 - b. The dredged material will be transported by barge to CIRB or by pipeline to the CIDMMA. If the CIDMMA or the CIRB become unavailable for use as a dredged material placement area during the terms of this authorization, you will be responsible for finding an alternate placement area and having it approved by this office prior to any further dredging.
 - c. Permitted users of CIDMMA and all associated dredged material placement operations shall comply with current version of the Army Corps of Engineers, Norfolk District, Commander's Policy Memorandum Number WRD-01, "Deposition of Dredged Material and use of the Craney Island Dredged Material Management Area, Norfolk Harbor, Virginia".
 - d. The form entitled "Deposit of Material into Craney Island" must be completed prior to depositing material into the CIDMMA or Rehandling Basin. Please be advised that it is the permittee's responsibility to ensure that the Corps receives the appropriate payments. Contact our Operations Support Section at 757-201-7642 or 7645 to obtain current conditions and toll rates at CIDMMA.
 - e. The permittee is hereby advised that the prime contractor performing the dredging project must obtain a Real Estate license from the Norfolk District Real Estate Office prior to the commencement of any work which would utilize the Craney Island Dredged Material Management Area or Government Bulkhead Facilities at the

Craney Island Rehandling Basin. The permittee/prime contractor should contact the Norfolk District Real Estate Acquisition, Management, and Disposal Section at (757) 201-7730 for further information regarding the Department of the Army License.

9. Within 30 days of completion of the dredging, an after-dredge hydrographic survey, prepared by a state-certified engineer or surveyor, must be provided to the Corps. The hydrographic survey should reference a local tidal or geodetic datum.
10. Barges and scows used to transport dredged material may be filled only to a point where no overflow occurs. No overflow pipes are allowed.

VI. GENERAL CONDITIONS:

The following conditions apply to all activities authorized under Regional General Permits (RP).

1. **Geographic jurisdiction.** This regional permit will authorize work undertaken within the geographical limits of the Commonwealth of Virginia under the regulatory jurisdiction of the U.S. Army Corps of Engineers (Corps).
2. **Compliance Certification.** A Certificate of Compliance must be completed and a copy retained for your records. The original Certificate of Compliance shall be mailed to, U. S. Army Corps of Engineers, Regulatory Branch, 803 Front Street, Norfolk, Virginia 23510-1096 within 30 days of completion of the project.
3. **Other permits.** Authorization does not obviate the need to obtain other Federal, state, or local authorizations required by law or to comply with all Federal, state, or local laws.
4. **Minimal effects.** Projects authorized shall have no more than minimal individual or cumulative adverse environmental impacts, as determined by the Corps.
5. **Discretionary authority.** The Norfolk District Corps of Engineers District Engineer retains discretionary authority to require processing of an individual permit based on concerns for the aquatic environment or for any other factor of the public interest (33 CFR Part 320.4(a)). This authority is exercised on a case-by-case basis.
6. **Single and complete projects.** This RP shall only be applied to single and complete projects. A single and complete project means the total project proposed or accomplished by one owner/developer or partnership and which has independent utility. For linear transportation projects with multiple crossings or encroachments a determination of "single and complete" will typically apply to each crossing of waters that occurs (i.e., single waterbody and/or wetlands) at separate and distinct locations and with independent utility. However, in cases where there are many crossings in close proximity, numerous crossings of the same waterbody, multiple crossings, or multiple encroachments that otherwise may have more than minimal individual or cumulative impacts; the Corps has the discretion to consider all the crossings cumulatively as one single and complete project.
7. **Independent Utility** A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent

utility. Phases of a project that would be constructed even if the other phases were not built can be considered as single and complete projects with independent utility.

8. **Multiple general permit authorizations.** This Regional Permit may be combined with any Corps general permits (including Nationwide (NWP) or Regional Permits (RP) for a single and complete project, as long as the impacts are considered cumulatively and do not exceed the acreage limit or linear foot limits of the RP/ NWP.
9. **Permit on-site.** The permittee shall ensure that a copy of the RP and the accompanying authorization letter are at the work site at all times. These copies must be made available to any regulatory representative upon request. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be expected to comply with all conditions of any general permit authorization.

General Conditions Related to National Concerns:

10. **Historic properties.** (a) In cases where it is determined that the activity may affect properties listed, or eligible for listing on the National Register of Historic Places, the activity is not authorized until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied. (b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the Corps with the appropriate documentation to demonstrate compliance with those requirements. The Corps will review the documentation and determine whether it is sufficient to address Section 106 compliance for the RP activity, or whether additional Section 106 consultation is necessary. (c) Non-federal permittees must submit a statement to the Corps regarding the authorized activity's potential to cause effects to any historic properties listed, or determined to be eligible for listing on the National Register of Historic Places, including previously unidentified properties. The statement must say which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location or potential for the presence of historic resources can be sought from the Virginia Department of Historic Resources (VDHR) (<http://www.dhr.virginia.gov/>) or Tribal Historic Preservation Officer (THPO), as appropriate, and the National Register of Historic Places. Where an applicant has identified historic properties which the proposed activity may have the potential to affect, the applicant shall not begin the activity until notified by the Corps that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed. (d) Prospective permittees should be aware that Section 110(k) of the NHPA (16 U.S.C. § 470(h)-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effects created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide

documentation specifying the circumstances, explaining the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/ THPO, appropriate Indian tribes if the undertaking occurs on or affect historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have legitimate interest in the impacts to the permitted activity on historic properties.

11. **Discovery of Previously Unknown Remains and Artifacts.** If you discover any previously unknown historic, cultural, or archaeological remains and artifacts while accomplishing activity authorized by this permit, you must immediately stop work and notify the Corps of what has been found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The Corps will initiate Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
12. **Tribal rights.** No activity authorized may impair reserved tribal rights, including, but not limited to, reserved water rights, treaty fishing, and hunting rights.
13. **Federal Lands.** Authorized activities shall not impinge upon the value of any National Wildlife Refuge, National Forest, National Park, or any other area administered by the U.S. Fish and Wildlife Service, U.S. Forest Service, or National Park Service unless approval from the applicable land management agency is provided with the permit application.
14. **Endangered species.** (a) No activity is authorized under any RP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will destroy or adversely modify the critical habitat of such species. No activity is authorized under any RP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed; (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the District Engineer with the appropriate documentation to demonstrate compliance with those requirements. (c) Non-federal permittees shall notify the District Engineer if any proposed or listed species or proposed or designated critical habitat may be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the District Engineer that the requirements of the ESA have been satisfied and that the activity is authorized. Information on the location proposed/listed species and proposed/designated critical habitat can be obtained directly from the U.S. Fish and Wildlife (USFWS) online project review process at http://www.fws.gov/northeast/virginiafield/endspecies/Project_Reviews.html and/or the NOAA Fisheries Service Protected Resources Division (NOAA PRD), at 55 Great Republic Drive, Gloucester, MA 01930 or via telephone at (978) 281-9328, email: <http://www.nero.noaa.gov/protected/index.html>. Notification must include the name(s) of the proposed or listed species and/or proposed or designated critical habitat that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. The District Engineer will determine whether the proposed activity "may affect" or will have "no effect" to proposed or listed species or proposed or designated critical habitat and will notify the non-Federal applicant of the

Corps' determination within 45 days of receipt of a complete notification. In cases where the non-Federal applicant has identified proposed or listed species or proposed or designated critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on proposed or listed species or proposed or designated critical habitat, or until Section 7 consultation has been completed. (d) As a result of formal or informal consultation with the USFWS or NOAA PRD the District Engineer may add species-specific regional endangered species conditions to the RP. (e) Authorization of an activity by a RP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the USFWS or NOAA PRD, both lethal and non-lethal "take" of protected species are in violation of the ESA.

15. **Essential Fish Habitat.** The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297; 11 October 1996), requires all Federal agencies to consult with the NOAA Fisheries Service Habitat Conservation Division (NOAA HCD) on all actions, or proposed actions, authorized, funded, or undertaken by the agency that may adversely affect Essential Fish Habitat (EFH). The EFH Designations within the Northeast Region (Maine to Virginia), dated March 1, 1999, has identified EFH for a number of species and their life stages within Virginia waters. If EFH consultation is required with NOAA HCD, the applicant shall not begin work until the Corps has provided notification that the EFH consultation has concluded.
16. **Migratory Birds and Bald and Golden Eagle Protection Act.** The bald eagle (*Haliaeetus leucocephalus*) is no longer a federally listed threatened or endangered species; therefore, the Endangered Species Act provisions are not applicable to this species. The Bald and Golden Eagle Protection Act (BGEPA) does not require that a federal agency involved in permitting the proposed action conduct coordination. The permittee is responsible for obtaining any "take" permits required under the U.S. Fish and Wildlife Service's regulations governing compliance with the Migratory Bird Treaty Act or the BGEPA. The applicant should either obtain "take" permit or a letter of concurrence from USFWS indicating that a permit is not necessary prior to initiating construction activities. You should contact USFWS concerning this matter at U.S. Fish and Wildlife Service, Virginia Field Office, ATTN: Kim Smith, 6669 Short Lane, Gloucester, VA 23061. Information on active bald eagle nests and concentration areas can be obtained in Step 6 of the U.S. Fish and Wildlife Service's online project review system available at: http://www.fws.gov/northeast/virginiafield/endspecies/Project_Reviews_Introduction.html.
17. **Wild and Scenic Rivers.** Currently, there are no designated Wild and Scenic Rivers in the Commonwealth of Virginia; however, the portion of the Upper New River from Glen Lyn, Virginia to the West Virginia/Virginia state line was designated a "study river" by Congress on October 26, 1992. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river has determined, in writing, that the proposed activity will not adversely affect the

Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Impacts that occur in these resource areas will require coordination with the appropriate Federal agency.

18. **Federal navigation project.** Authorized activities may not interfere with any existing or proposed Federal navigation projects.
19. **Navigation.** (a) No authorized activity may cause more than a minimal adverse effect on navigation. (b) The permittee understands and agrees that if future operations by the United States require the removal, relocation, or other alteration of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his/her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.
20. **Floodplains.** All practicable efforts shall be made to conduct the work authorized by this RP in a manner so as to avoid any adverse impact on the Federal Emergency Management Agency (FEMA) designated 100-year floodplain.
21. **Real estate.** Activities authorized under this RP do not grant any Corps or Federal real estate rights. If real estate rights are needed from the Corps, you must contact the Corps Real Estate Office at (757) 201-7735 or at the address listed on the front page of this permit.
22. **Environmental Justice.** Activities authorized under this RP must comply with Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations".
23. **Federal liability.** In issuing this RP, the Federal government does not assume any liability for the following: (a) damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes; (b) damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest; (c) damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this RP; (d) design or construction deficiencies associated with the permitted work; (e) damage claims associated with any future modification, suspension, or revocation of this permit.

General Conditions Related to Minimizing Environmental Impacts:

24. **Avoidance and minimization.** Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. (40 CFR Part 230.10(a) Section 404 (b)(1) Guidelines).
25. **Mitigation.** Mitigation in all its forms (avoiding, minimizing, or compensating for resource losses) may be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal. The activity must be designed and constructed to

avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site)."

26. **Heavy equipment in wetlands.** Heavy equipment working in wetlands must be placed on mats or other measures must be taken to minimize soil disturbance.
27. **Temporary fills.** All temporarily disturbed waters and wetlands must be restored to preconstruction contours within 6 months of commencing the temporary impact's construction. Impacts that will not be restored within 6 months (calculated from the start of the temporary impacts construction) will be considered permanent unless otherwise approved by the RP. Following restoration of contours, the soil in wetlands must be mechanically loosened to a depth of 12 inches, and the wetlands must then be seeded or sprigged with appropriate native wetland vegetation.
28. **Sedimentation and erosion control.** Appropriate erosion and sediment controls must be employed and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark, must be permanently stabilized at the earliest practicable date.
29. **Aquatic life movements.** No authorized activities may substantially disrupt the necessary life cycle movements of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water. Corps has determined that fish and wildlife are most often present in any stream being crossed, in the absence of evidence to the contrary. All permanent and temporary crossings of water bodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. This includes providing invert elevations of culverts at or below the streambed to ensure unrestricted passage of aquatic organisms, where possible.
30. **Discharge of pollutants.** All authorized activities involving any discharge of pollutants into waters of the United States shall be consistent with applicable water quality standards, effluent limitations, standards of performance, prohibitions, and pretreatment standards and management practices established pursuant to the CWA (33 U.S.C. § 1251 *et seq.*) and applicable state and local laws. No discharge of dredged or fill material in association with this authorization may consist of unsuitable material such as trash, debris, car bodies, asphalt, etc.
31. **Obstruction of high flows.** Discharges of dredged or fill material must not permanently restrict or impede the passage of normal or expected high flows.
32. **Waterbird breeding areas.** Discharges of dredged or fill material into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.
33. **Native trout and anadromous fishes.** Authorizations for discharges of dredged or fill material into native trout waters or anadromous fish use areas will be conditioned to limit in-stream work within timeframes recommended by the DGIF and/or NOAA Fisheries Service. Coordination with DGIF and/or NOAA Fisheries Service will be conducted by the Corps. The applicant shall not begin work until notification is received that all coordination has been completed and/or the Corps has provided the applicant with the appropriate time of year restrictions regarding work in native trout waters or anadromous fish use areas.
34. **Water supply intakes.** No discharge of dredged or fill material may occur in the proximity of a public water supply intake except where the discharge is for adjacent bank stabilization and/or the Corps has provided specific authorization under this permit.

General Procedural Conditions:

35. **Inspections.** A copy of this permit and any verification letter must be provided to the contractor and made available at the project site to any regulatory representative. The permittee understands and agrees that the Corps are permitted and allowed to make periodic inspections at any time the Corps deems necessary in order to assure that the activities being performed under authority of this permit are in accordance with the terms and conditions prescribed herein. The Corps reserves the right to require post-construction engineering drawings and/or surveys of any work authorized under this RP, as deemed necessary on a case-by-case basis.
36. **Maintenance.** The permittee shall maintain the work authorized herein in good condition and in conformance with all terms and conditions of this permit. All fills shall be properly maintained to ensure public safety.
37. **Property rights.** This General Permit does not convey any property rights, either in real estate or material, or convey any exclusive privileges, nor does it authorize any injury to property or invasion of rights or any infringement of Federal, state, or local laws or regulations.
38. **Modification, suspension, and revocation.** This RP may be either modified, suspended, or revoked in whole or in part pursuant to the policies and procedures of 33 CFR Part 325.7. Any such action shall not be the basis for any claim for damages against the United States.
39. **Restoration directive.** The permittee, upon receipt of a restoration directive, shall restore the waters of the United States to their former conditions without expense to the United States and as directed by the Secretary of the Army or his/her authorized representative. If the permittee fails to comply with such a directive, the Secretary or his/her designee, may restore the waters of the United States to their former conditions, by contract or otherwise, and recover the cost from the permittee.
40. **Special conditions.** The Corps may impose other special conditions on a project authorized pursuant to this RP that are determined necessary to minimize adverse navigational and/or environmental effects or based on any other factor of the public interest. Failure to comply with all general conditions of the authorization, including special conditions, constitutes a permit violation and may subject the permittee, or his/her contractor, to criminal, civil, or administrative penalties and/or restoration.
41. **False or incomplete information.** In granting authorization pursuant to this permit, the Corps has relied upon information and data provided by the permittee. If, subsequent to notification by the Corps that a project qualifies for this permit, such information and data prove to be materially false or materially incomplete, the authorization may be suspended or revoked, in whole or in part, and/or the United States may institute appropriate legal proceedings.
42. **Abandonment.** If the permittee decides to abandon the activity authorized under this RP, unless such abandonment is merely the transfer of property to a third party, he/she may be required to restore the area to the satisfaction of the Corps.
43. **Transfer of authorization.** In order to transfer authorization under this RP, the transferee or permittee must supply the Corps with a written and signed, by all appropriate parties, request to make such a transfer. Such transfer is not effective until written approval has been granted by the Corps.

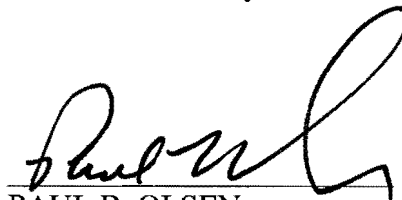
44. **Binding effect.** The provisions of the permit authorization shall be binding on any assignee or successor in interest of the original permittee.

General Conditions Regarding Duration of Authorizations, Time Extensions for Authorizations, and Permit Expiration:

45. **Duration of Activity's Authorization.** Activities authorized under 13-RP-02 must be completed by August 14, 2018. If this RP is reissued at that time, and if this work has not been started or completed, but the project continues to meet the terms and conditions of the revalidated RP, then the project will continue to be authorized. The Corps will issue a special public notice announcing any changes to the Regional Permits when they occur; however, it is incumbent upon you to remain informed of changes to the RPs. Activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon this RP that do not meet the terms and conditions of the revalidated RP will remain authorized provided the activity is completed within twelve months of the date of this RP's expiration (i.e. August 14, 2019), unless discretionary authority has been exercised on a case-by-case basis to modify, suspend, or revoke the authorization in accordance with 33 CFR Part 325.7(a-e). If work cannot be completed by August 14, 2019, you must reapply for separate permit authorization in order to meet current permit criteria.
46. **Expiration of 13-RP-02.** Unless further modified, suspended, or revoked, this general permit will be in effect until August 14, 2018. Upon expiration, it may be considered for revalidation. Activities completed under the authorization of a RP which was in effect at the time the activity was completed continue to be authorized by that RP.

AUG 13 2013

Date



PAUL B. OLSEN
Colonel, Corps of Engineers
Commanding



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

TIDEWATER REGIONAL OFFICE

Doug Domenech
Secretary of Natural Resources

5636 Southern Boulevard, Virginia Beach, Virginia 23462
(757) 518-2000 Fax (757) 518-2009
www.deq.virginia.gov

David K. Paylor
Director

Maria R. Nold
Regional Director

June 26, 2012

Robin D. Mills
United States Department of the Army
Fort Eustis
C/o Ms. Elizabeth Grey Waring, Chief
Operations Branch
U.S. Army Corps of Engineers
803 Front Street
Norfolk, Virginia 23510

Notification of No Permit Required
Joint Permit Application Number 12-0753
Skiffes Creek Navigation Project

Dear Ms. Waring:

The Department of Environmental Quality (DEQ) received your application on May 22, 2012, to maintenance dredge over a 15 year period, 500,000 cubic yards of material per cycle from three areas within the 4-mile long, 137-acre Skiffes Creek Federal Navigation Channel, which serves as the entrance to the Third Port, and is a tributary of the James River, and to pump the spoils via hydraulic pipeline to the Fort Eustis Dredged Material Management Area (FEDMMA), a confined upland facility, at Fort Eustis.

Provided your project qualifies(d) for a regional or nationwide permit from the U.S. Army Corps of Engineers (USACE) on which DEQ has provided § 401 Certification, and provided you comply with all the conditions of the USACE permit, a Virginia Water Protection (VWP) permit will not be required by the DEQ for this project. Should the size and scope of the project change, a permit may be required.

If you have any questions, please do not hesitate to contact me at me at (757) 518-2109 or margaret.emslie@deq.virginia.gov.

Sincerely,

A handwritten signature in cursive script, appearing to read "Peggy Emslie".

Peggy Emslie
Project Manager

cc: Mr. John Evans, US Army Corps of Engineers, Norfolk District Office
Mr. Mike Johnson, Virginia Marine Resources Commission



COMMONWEALTH of VIRGINIA

Marine Resources Commission

*2600 Washington Avenue
Third Floor
Newport News, Virginia 23607*

Douglas W. Domenech
Secretary of Natural Resources

Jack G. Travelstead
Commissioner

May 31, 2012

Robin D. Mills
Department of the Army
C/o US Army Corp of Engineers
Attn: Elizabeth G. Waring
803 Front St
Norfolk, VA 23510

VMRC #12-0753

Dear Ms. Mills:

This will acknowledge receipt of a Joint Permit Application requesting authorization to maintenance dredge up to 500,000 cubic yards of State-owned subaqueous bottom within the channel approaching and including Skiffs Creek at the Third Port Facility, Fort Eustis, in the City of Newport News, VA. It is my understanding that the dredge area is within the Congressionally approved project channel and turning basin and that the spoil will be placed at the Fort Eustis Dredged Material Management Area (FEDMMA), therefore no authorization is required from VMRC for this project.

If you have any questions, please contact me at (757) 247-2255.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Michael Johnson".

J. Michael Johnson
Environmental Engineer

JMJ:jaj
HM
Cc: Applicant
Newport News Wetlands Board

An Agency of the Natural Resources Secretariat

www.mrc.virginia.gov

Telephone (757) 247-2200 (757) 247-2292 V/TDD Information and Emergency Hotline 1-800-541-4646 V/TDD

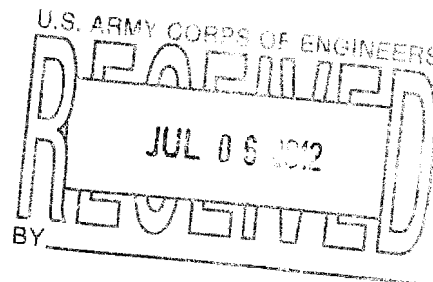
John



City of Newport News
Department of Engineering

2400 Washington Avenue • Newport News, Virginia 23607
tel 757/926-8611 • fax 757/926-8300

July 3, 2012



Robin D. Mills
Department of the Army
c/o US Army Corp of Engineers
Attn: Elizabeth G. Waring
803 Front Street
Norfolk, Virginia 23512

Re: NNWB #12-009; VRMC #12-0753

Dear Ms. Mills:

Since all activity for your proposed project to maintenance dredge up to 5000,000 cubic yards of state-owned subaqueous bottom within the channel approaching and including Skiffs Creek at the Third Port Facility is channelward of Mean High Water (MHW) at Fort Eustis Mulberry Island Reserve Fleet Facility, is outside the jurisdiction of the Newport News Wetlands Board and no permit will be required from this Board.

Sincerely,

Richard M. Harr, PWS, CES
Newport News Wetlands Board

Copy to: VMRC, Habitat Management Division
U.S. Army Corps of Engineers, Norfolk District
Director of Engineering
Director of Planning
Director of Codes Compliance
City Clerk
Wetlands Board

APPENDIX B

MPRSA, SECTION 103 EVALUATION REPORT

FINAL



US Army Corps
of Engineers
Norfolk District

**MARINE PROTECTION, RESEARCH, AND SANCTUARIES
ACT (MPRSA) SECTION 103 EVALUATION**

**SKIFFES CREEK CHANNEL
FORT EUSTIS, NEWPORT NEWS, VIRGINIA**



Submitted to:

U.S. Environmental Protection Agency
Region 3
1650 Arch St
Philadelphia, Pennsylvania 19103



Submitted by:

Department of the Army
U.S. Army Corps of Engineers
Norfolk District
803 Front St.
Norfolk, Virginia 23510



Prepared by:

EA Engineering, Science, and Technology, Inc.
225 Schilling Circle, Suite 400
Hunt Valley, Maryland 21031

May 2014



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

MAY 13 2014

Mr. John Evans
Program Manager, Regulatory Branch
Department of the Army
Norfolk District, Corps of Engineers
Fort Norfolk, 803 Front Street
Norfolk, Virginia 23510-1096

Dear Mr. Evans:

Thank you for your April, 2014 request for concurrence on the suitability for ocean disposal of dredged material from Skiffes Creek Channel (Skiffes Creek) pursuant to Section 103 of the Marine Protection Research and Sanctuaries Act (MPRSA). As you know, Section 103 of the MPRSA specifies that all proposed operations involving transportation and dumping of dredged material into ocean waters be evaluated for potential environmental impacts. The Secretary of the Army has responsibility for this evaluation using criteria developed by the Administrator of the U.S. Environmental Protection Agency (EPA).

EPA Region 3 has completed its review of the Skiffes Creek Channel project and, contingent upon the conditions included in this letter, concurs that the proposed dredged material meets the Ocean Disposal Criteria (40 CFR 227).

Project Overview

The U.S. Army Corps of Engineers, Norfolk District (Norfolk Army Corps) proposes to dredge approximately 330,000 cubic yards (cy) of material from Skiffes Creek for the U.S. Army. The Skiffes Creek Channel is located adjacent to Fort Eustis, Virginia. This channel serves as the entrance to the port at Fort Eustis. Skiffes Creek is a tributary to the James River. Dredging is required to restore the channel to a maximum of -21 feet (ft) mean lower low water (MLLW). The material will be placed in the Norfolk Ocean Disposal Site (Norfolk or NODS) in accordance with 40 CFR § 228.15, which states that Norfolk is a federally designated site with a restriction that the "site shall be limited to dredged material which passed the criteria for ocean dumping".

EPA Region 3 conducted an independent determination of compliance with the Ocean Disposal Criteria based on the following:

Exclusionary Criteria

In accordance with 40 CFR § 227.13(b), dredge material that meets the criteria set forth in the following paragraphs (b)(1), (2), or (3) of this section is environmentally acceptable for ocean dumping without further testing under this section:

- (1) Dredged material is composed predominantly of sand, gravel, rock, or any other naturally occurring bottom material with particle sizes larger than silt, **and** the material is found in areas of high current or wave energy such as streams with large bed loads or coastal areas with shifting bars and channels; or
- (2) Dredged material is for beach nourishment or restoration and is composed predominantly of sand, gravel or shell with particle sizes compatible with material on the receiving beaches; or
- (3) When the material proposed for dumping is substantially the same as the substrate at the proposed disposal site; **and** the site from which the material would be dredged is far removed from known existing and historical sources of pollution so as to provide reasonable assurance that such material has not been contaminated by such pollution.

The material in the Skiffes Creek Channel consists primarily of silts and clays and therefore does not meet the exclusionary criteria set forth under 40 CFR § 227.13(b).

Evaluation of the Liquid Phase – Water Quality Criteria (WQC)

Due to the lack of historical data associated with ocean testing, ten sediment samples were collected and composited into five samples. Those five samples represented five separate Dredge Units. The sediments collected from the channel consisted mostly of silt/clay, ranging from 82 to 99%. Samples were collected at Willoughby Bank to be used as the reference site. Sediment samples from Willoughby Bank consisted of 74.3% sand. The presence of several metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), chlorinated and organophosphorus pesticides, and dioxins/furans were detected at the sample site.

Ammonia concentrations in all of the dredge units exceeded USEPA acute criteria. The highest concentration of ammonia was 20.0 mg/L compared to the USEPA acute criteria value of 4.91 mg/L. Therefore, the dilution factor for ammonia was used to determine compliance with water quality criteria.

A maximum of a 3.2-fold dilution is required to comply with the acute ammonia criteria inside the boundary of the Norfolk Ocean Disposal Site. Results of the STFATE model indicated a minimum of a 365-fold dilution would occur 4 hours following placement using the most conservative dilution value for all five Dredge Units.

Based on the information above, the liquid phase of the material is in compliance with 40 CFR § 227.6(c)(1) and 227.27(a)(1).

Evaluation of the Liquid and Suspended Particulate Phases – Suspended Particulate Phase Bioassay

Bioassays were conducted using the following three species: *Mytilus galloprovincialis* (Mediterranean mussel), *Americamysis bahia* (opossum shrimp), and *Menidia beryllina* (inland silverside). There was abnormal development in the *Mytilus* species tests. The site elutriate was greater than 100% for the *Americamysis* and *Menidia* species and were not statistically different than the control.

The EC₅₀ values ranged from 22.5% and 27.6% and were statistically different than the control. The water column Limiting Permissible Concentration (LPC) for ocean placement is equivalent to 0.01 of the EC₅₀ within a 4 hour dilution period. The most conservative LPC value for *Mytilus* would require a 361-fold dilution. Results of the STFATE model indicated that a minimum of a 365-fold dilution would occur within the site in 4 hours, which is sufficient to meet the LPC.

Data from the STFATE model indicate that the rate of dilution within 4 hours of placement at the site is greater than the dilution needed to meet the toxicity threshold. Therefore, the suspended particulate phase of the material complies with 40 CFR § 227.6(c)(2) and 227.27(b).

Solid Phase Toxicity Evaluation

Ten-day toxicity tests were conducted on project materials using two benthic species, *Neanthes arenaceodentata* (polychaete worm) and *Leptocheirus plumulosus* (estuarine amphipod). Ten sediment samples were collected and were composited into five composite samples. The lowest survival rate for *Neanthes* was 97% survival and 100% survival in the Willoughby Bank reference sediment. The lowest survival rates for *Leptocheirus* was 96% compared to 97% survival in the Willoughby Bank reference sediment. Therefore, none of the sample stations exceeded the reference mortality by 20%.

The dredged material does not meet the limiting permissible concentration (LPC) for benthic toxicity when bioassay organisms' mortality is statistically greater than in the reference sediment **and** exceeds mortality in the reference sediment by at least 20%. Mortality in the dredge material is not statistically greater than in the reference sediment, and does not exceed mortality in the reference sediment by 20%. Therefore, the dredged material meets the LPC for benthic toxicity and complies with the benthic bioassay criteria set forth in 40 CFR § 227.13(c)(3).

Solid phase bioaccumulation evaluation

Twenty-eight day bioaccumulation tests were conducted on the solid phase of the project material for the contaminants of concern using two appropriate sensitive benthic marine organisms, *Nereis virens* (sand worm) and *Macoma nasuta* (blunt nose clam). The ten samples were composited into five composite samples due to the similarities in sediment composition and concentrations of contaminants of concern. Tissue analyses were conducted for the following:

- Dredge Unit 1 (metals)
- Dredge Unit 2 (metals, dioxins/furans)
- Dredge Unit 3 (metals, pesticides)
- Dredge Unit 4 (metals, pesticides)
- Dredge Unit 5 (metals, PAHs, PCBs, dioxins/furans, pesticides)

Concentrations of 1,2,3,4,6,7,8-HPCDD, octachlorodibenzodioxin (OCDD), mercury exceeded the concentrations in the Willoughby Bank reference sediment for *Nereis*. Concentrations of arsenic, chromium, copper, mercury, nickel, selenium, silver, zinc, 1,2,3,6,7,8-HxCDD, 1,2,3,4,6,7,8-HPCDD, and OCDD exceeded the concentrations in the Willoughby Bank reference sediment for *Macoma*.

Tissue concentrations for metals and total PCBs were compared to the U.S. Food and Drug Administration (FDA) Action Levels. For project materials, none of the materials, for which there are FDA Action Levels, exceeded such thresholds in the tissues or organisms exposed to the project sediment.

When bioaccumulation of contaminants in dredged material tests exceeds that in the reference, general risk-based evaluations must be conducted to evaluate compliance with 40 CFR § 227.13(c)(3). EPA Region 3 conducted such an evaluation and determined there is no potential for undesirable effects due to bioaccumulation as a result of the presence of individual chemicals or of the solid phase of the material as a whole. Accordingly, the solid phase of the material proposed for disposal meets the ocean disposal criteria set forth in 40 CFR § 227.6(c)(3) and 227.27(b).

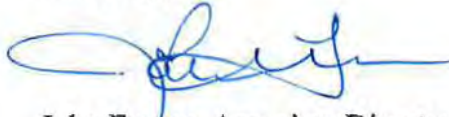
In accordance with the Water Resources Development Act of 1992 amendments to MPRSA, disposal activities must be conducted in accordance with the Norfolk Ocean Disposal Site Management and Monitoring Plan (SMMP) including the following:

- Disposal will occur within boundaries of the site and at least 100 meters (300 ft.) from the perimeter of the disposal site;
- The disposal zone(s) shall be surveyed before and after the project to ensure proper placement of materials and compliance with Norfolk site conditions;
- The Norfolk District will assign designated disposal areas and boundaries for purposes of this project;
- Each Dredge Unit has different volume restrictions. Maximum placement volumes are as follows for each Dredge Unit:
 - Dredge Unit 1: 5,600 cy
 - Dredge Unit 2: 6,800 cy
 - Dredge Unit 3: 6,500 cy
 - Dredge Unit 4: 4,900 cy

- Dredge Unit 5: 4,600 cy
- Materials from these Dredge Units **shall** not be combined unless the **volume** is the same in both **units** and/or the **most conservative** dredge unit volume is used
- Each disposal vessel **will** have an Electronic Tracking System and the Norfolk Army Corps **will** maintain all data associated with the project; and
- The Norfolk Army Corps will provide EPA with a disposal summary report following completion of the project.

Again, this concurrence is conditioned upon implementation of the above requirements and is valid for a term of three years from May 14, 2014. Use of the Norfolk Ocean Disposal Site after May 14, 2017 will require further evaluation of the proposed dredged material. Should you have any questions regarding this concurrence or use of the Norfolk Ocean Disposal Site, please contact me or Ms. Renee Searfoss at 215-814-2137.

Sincerely,



John Forren, Associate Director
Environmental Assessment & Innovation Division

**MARINE PROTECTION RESEARCH AND SANCTUARIES ACT (MPRSA)
SECTION 103 EVALUATION**

**SKIFFES CREEK CHANNEL
FORT EUSTIS, NEWPORT NEWS, VIRGINIA**

May 2014

1. DREDGING AND PLACEMENT PROJECT INFORMATION.

Skiffes Creek is located adjacent to Fort Eustis, Newport News, Virginia. The Skiffes Creek Channel provides a navigable channel from the James River to the mouth of Skiffes Creek and serves as the entrance to Third Port. The Third Port is a deepwater port used to train personnel in cargo logistics and vessel operations. The facility provides a safe harbor for the 7th Transportation Brigade (Expeditionary) at the U.S. Army Transportation Center, Fort Eustis and serves as a deployment platform for Army units. In addition, it is a joint service training facility for watercraft operators and cargo handlers. U.S. Army vessels assigned to the Third Port include tugs, Logistics Support Vessels, Landing Utility Craft, Landing Craft Mechanized, full barge, warping tugs, causeway barges, security vessels, and fire boats.

Sedimentation has reduced the channel depths from required dimensions, and vessels are currently subject to running aground at lower tides, impeding navigation. With the current shoaling concerns, underkeel clearances are jeopardized, and may result in increased maintenance, repairs and downtime for the larger vessels. Maintenance dredging is necessary to restore minimal operational depths for deeper draft vessels during all tidal stages to support the transportation training mission of Joint Base Langley – Fort Eustis.

The subject of this evaluation is maintenance dredging of the Skiffes Creek Channel (Figure 1), and the subsequent placement of the dredged material in the Norfolk Ocean Disposal Site (NODS) (Figure 2). The NODS was identified as the location for placement proposed for dredging from the Skiffes Creek Channel Project because: 1) the NODS is designated to provide capacity for long-term management of dredged material from the lower Chesapeake Bay region, 2) it is close to the project location, and 3) it has the capacity to accept the material.

For this project, the Skiffes Creek Channel dredging footprint was divided into five (5) dredging units (DUs) (see Figure 1). One composite sediment sample for each dredging unit (each composite consisting of material collected from two sampling locations) was tested for ocean placement requirements.

The Willoughby Bank reference site (Figure 2) was chosen as the reference site for this project based on the assumption that the material proposed for dredging would be primarily fine-grained with limited sand content. The Willoughby Bank reference area has been used for other recent ocean placement evaluations for the NODS (EA 2009; EA 2010a, b, c; EA 2011, EA 2012; EA 2013b).

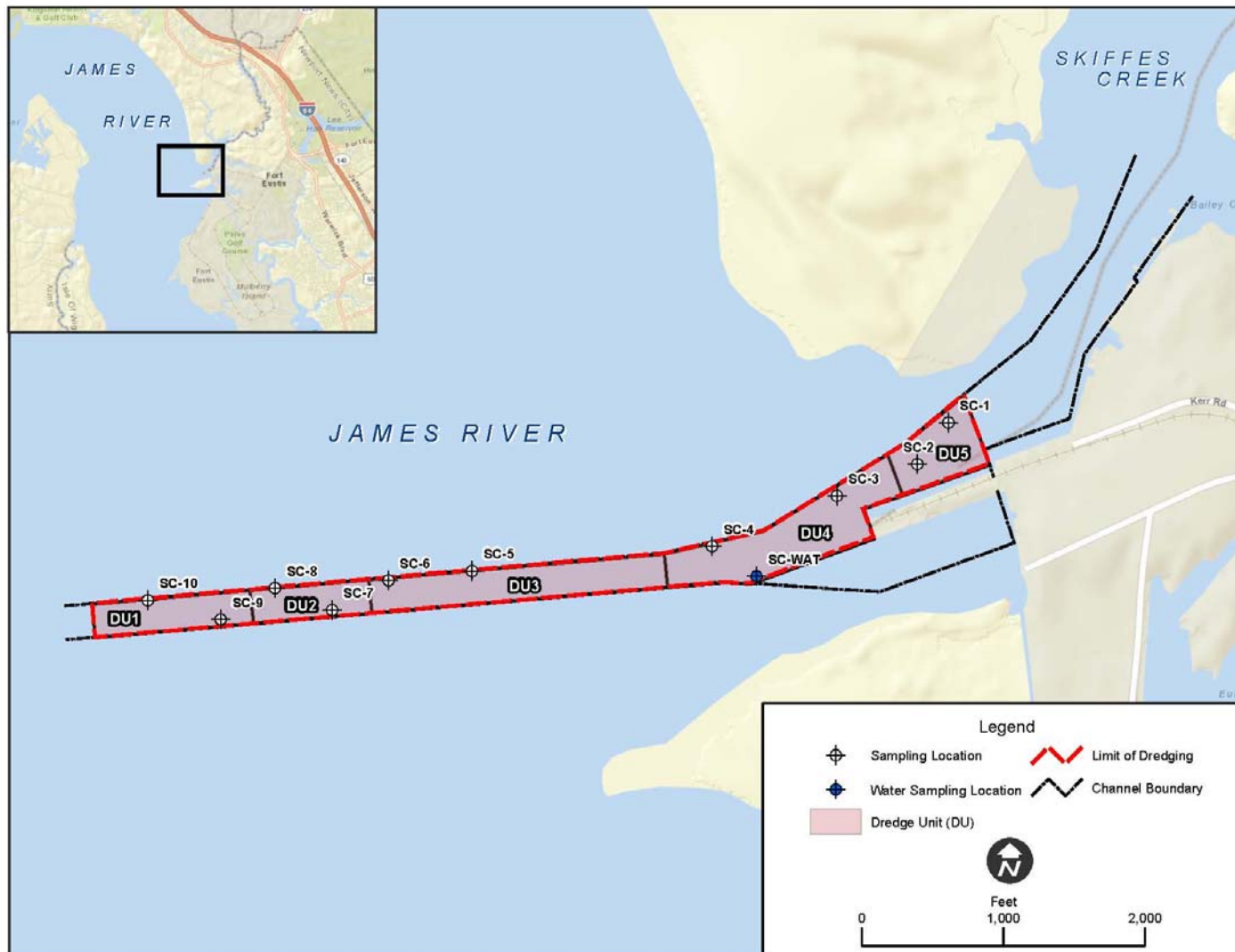


Figure 1. Dredging Units and 2013 Sampling Locations for the Skiffes Creek Channel

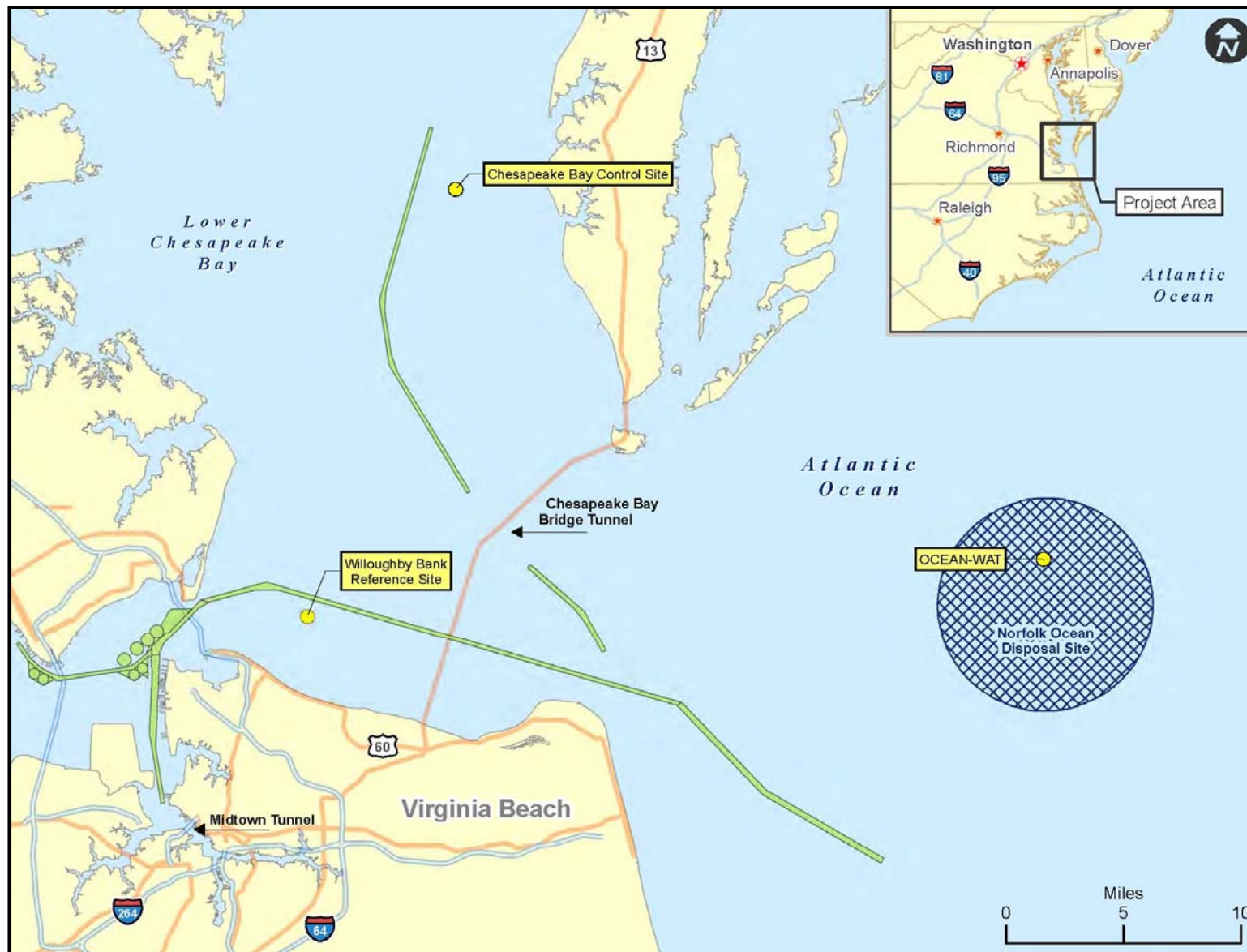


Figure 2. Willoughby Bank Reference Site, the Chesapeake Bay Control Site, and the Norfolk Ocean Disposal Site.

a. Dredging Location. Skiffes Creek is a tributary to the James River (Figure 1). Skiffes Creek Channel is a Federal channel maintained through military appropriations and provides for the following three channel segments:

- A channel 23 feet deep, approximately 7,800 ft in length, and 240 ft wide;
- A channel 20 feet deep, approximately 690 ft in length, and 365 ft wide; and
- A channel 14 feet deep, approximately 715 ft in length, and a variable width from 300 to 500 ft.

To meet mission requirements, maintenance dredging of the 23 ft deep channel segment of the project will be required to establish minimum operational depths and restore safe navigation. During the current maintenance cycle dredging will restore channel depths to a maximum of -21 ft Mean Lower Low Water (MLLW), including required, allowable, and non-pay overdepths. The most recent bathymetric survey was completed in March 2014 (Attachment I). Existing water depths in the channel area proposed for dredging range from approximately 13.4 ft MLLW to 19.4 ft MLLW.

b. Core Borings. Sediment cores ranging in depth from approximately 3.5 ft to 6.7 ft below sediment surface were collected from ten locations (SC-01 through SC-10 – see Figure 1) in the proposed dredging area. The cores were collected to a depth of -21 ft MLLW.

c. Volume of Material to be Dredged. Based on the bathymetric survey conducted in March 2014, the proposed project will require the dredging and placement of a maximum of approximately 330,000 cubic yards (cy) of material. The project will be dredged to a maximum depth of -21 ft MLLW [18 ft MLLW +2 ft allowable pay overdepth + 1 ft non-pay overdepth]. The estimated approximate volume by dredging unit is as follows: DU1 = 65,000 cy; DU2 = 55,000 cy; DU3 = 60,000 cy; DU4 = 95,000 cy; and DU5 = 55,000 cy.

d. Grain Size of Dredged Material. Results of grain size analysis for both discrete and composite sediment samples from the Skiffes Creek Channel ranged from 82 to 99.3 percent silt+clay (Tables 1A and B, Figure 3). The silt-clay content was slightly higher in the sediments collected in the portion of the channel in the James River (locations SC-05 through SC-10), as opposed to samples collected directly at the mouth of the creek (locations SC-01 through SC-04). The sediment from the Willoughby Bank reference site was comprised of 74.3 percent sand, 23.4 percent silt+clay, and 2.3 percent gravel.

e. Bathymetric Information. Existing water depths in the proposed dredging area range from approximately 13.4 to 19.4 ft. A bathymetric survey of the Skiffes Creek Channel was conducted in March 2014, and the bathymetry data for the area to be dredged are included in Attachment I.

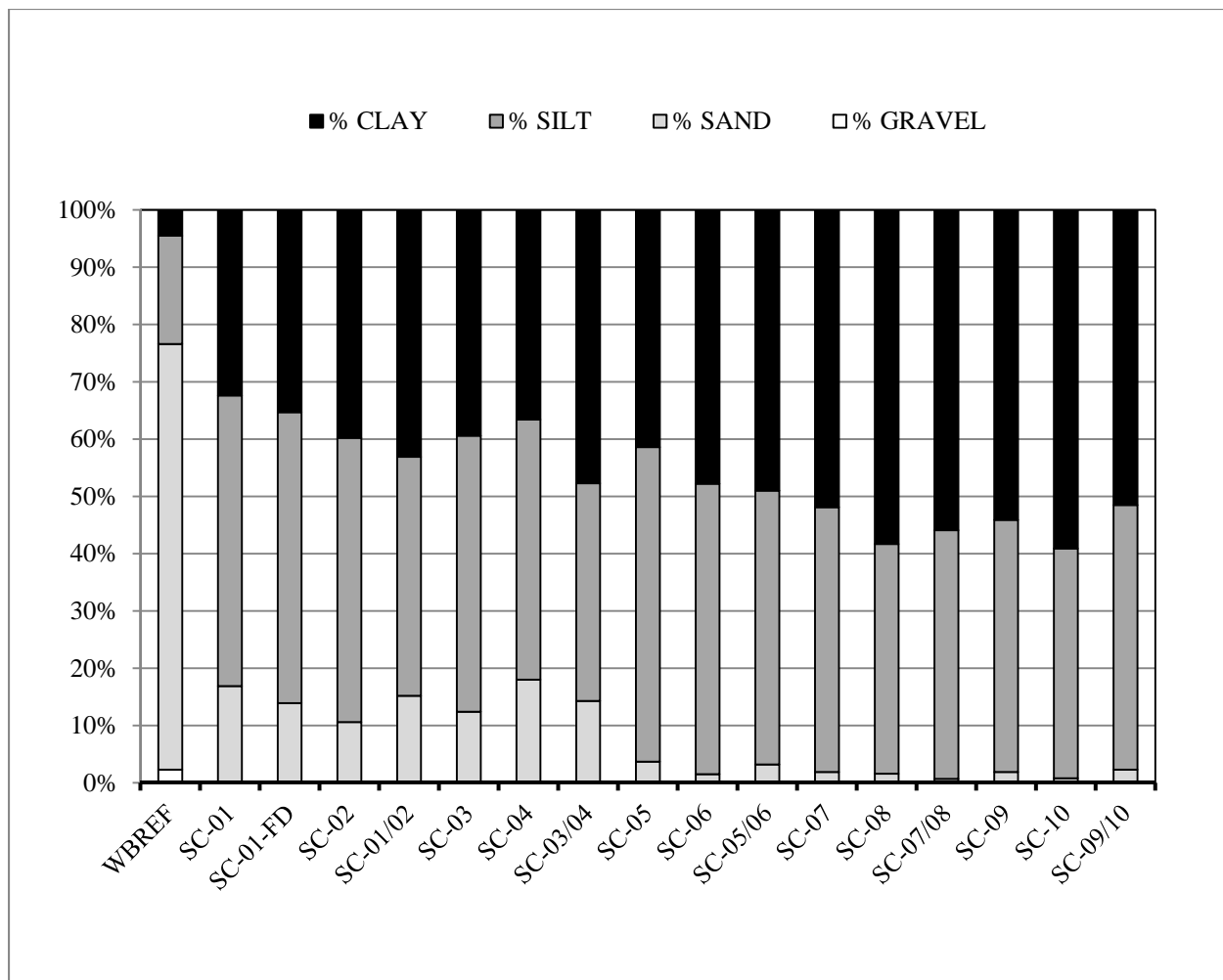


Figure 3. Grain size distribution in sediment samples from the Skiffes Creek Channel and the Willoughby Bank Reference Site.

f. Description of the Disposal Area. The Norfolk Ocean Disposal Site (NODS) is located in the Atlantic Ocean approximately 17 miles east of Cape Henry and is approximately 50 square nautical miles in size (40 CFR Part 228). The site is circular with a radius of 4 nautical miles and the water depth ranges from 43 to 85 ft [U.S. Army Corps of Engineers (USACE)-Norfolk District/Virginia Port Authority (VPA) 2008]. The Chesapeake Light Tower is located approximately 2 statute miles south/southeast of the site.

The center point coordinate of the Norfolk Ocean Disposal Site is (40 CFR Part 228):

Latitude: 36° 59' 00" N

Longitude: 75° 39' 00" W

The NODS has unlimited capacity and is designated for use as an alternate site for lower Chesapeake Bay channels as well as a placement location for suitable materials from the Inner Harbor channels within the Port of Hampton Roads (CENAO 1994 cited by USACE 2005). The

Final Environmental Impact Statement (FEIS) for the designation of the NODS (U.S. Environmental Protection Agency [USEPA] Region 3 1992) states that the site was intended to provide capacity for long-term management of dredged material from the lower Chesapeake Bay and suitable materials from Norfolk Harbor. However, the FEIS also states that the site could be used for placement of material from other dredging projects that meet the requirements of Section 103 of Marine Protection Research and Sanctuaries Act (MPRSA) of 1972. The designation of the site in 40 CFR Part 228.15 indicates the “site shall be limited to suitable dredged material which passed the criteria for ocean dumping.”

Until recently, the only prior use of the NODS was by the U.S. Navy in August 1993. Approximately 51,000 cy of dredged material from the Naval Supply Center Cheatham Annex and 475,000 cy of dredged material from the Naval Weapons Station Yorktown was placed at the site. Dredged materials from both projects were primarily comprised of silts and clays (EA 2012a, 2013). Other projects currently utilizing the NODS or approved for future placement at the NODS include the Craney Island Eastern Expansion project (24 mcy of dredged material), the new Midtown Tunnel construction (2 mcy of dredged material), and maintenance dredging for Cheatham Annex (48,000 cy of dredged material), and Naval Weapons Station Yorktown (42,000 cy of dredged material). In addition, the NODS serves as a back-up placement option for maintenance materials from the Upper Chesapeake Bay approach channels to the Port of Baltimore that pass the ocean placement criteria.

A site management and monitoring plan (SMMP) for the NODS became effective in 1998 and was renewed in February 2009. Its goal is to protect the marine environment and document the dredged material placement activities at the NODS (USEPA Region 3 1997). The objective of the SMMP is to provide guidelines in making management decisions necessary to fulfill the mandated responsibilities to protect the marine environment. The specific management objectives of the NODS include: 1) protection of the marine environment, living resources, and human health and welfare; 2) documentation of disposal activities at the NODS and provision of information that is useful in managing the dredged material placement activities; and 3) beneficial use of dredged material whenever practical (USEPA Region 3 1997).

g. Expected Start, Duration, and End of Dredging. It is anticipated that dredging at the Skiffes Creek Channel will be initiated in November 2014 and will be completed in April 2015 (an approximate 5 to 6-month dredging/placement duration). Actual dredging periods will be dependent on the duration of the Federal acquisition process and timing of contract award.

h. Location of Placement Within the NODS. The dredged material will be mechanically excavated (bucket dredge), transported to the NODS using bottom dump scows, and placed in a designated placement zone within the NODS where it will be evenly distributed. The USEPA Region 3 and USACE-Norfolk District have designated two zones within the NODS for placement of material from Skiffes Creek Channel (Figure 4). Progress surveys of portions of the active zones during placement periods will be utilized, if warranted, to ensure proper placement of materials. Before and after placement bathymetric surveys will be conducted at the placement zone prior to and after completion of placement activities.

Split hull dump scows will be used to transport the material to the offshore disposal site and they will be equipped with Automated Scow Monitoring Systems in compliance with the USACE National Dredging Quality Management (DQM) System requirements. These systems collect, store, and transmit barge draft, location in transit, and verification data for offshore material placement. This information will be available daily and will be transmitted to USACE and USEPA (per DQM requirements), and/or the dredging contractor's management team, and these data will serve as quality assurance (QA) and quality control (QC) for the offshore placement activities.

i. Compliance With NODS Site Designation Conditions. USEPA and USACE manage the NODS through a joint SMMP. Use of the site for dredged material placement will comply with site requirements. USACE-Norfolk District conducts periodic bathymetric surveys of the ocean disposal sites when site activity warrants. A baseline bathymetric survey of a portion of the NODS was most recently conducted by USACE-Norfolk District in 2009 to survey the area targeted for placement of material from the Craney Island Eastern Expansion project. The material from the Skiffes Creek Channel will be placed in a different section of the NODS, which has been designated by USEPA Region 3 and USACE-Norfolk District (Figure 4).

2. EXCLUSIONARY CRITERIA

The exclusionary criteria (40 CFR Part 227.13) are used to determine if material is acceptable for ocean placement without further testing. If the material meets one of the following criteria it is acceptable:

1. The dredged material is comprised predominately of sand, gravel, rock, or any other naturally occurring bottom material with particle sizes larger than silt, and the material is found in areas of high current or wave energy.
2. Dredged material is for beach nourishment or restoration and is comprised predominately of sand, gravel, or shell with particle sizes comparable with material on the receiving beaches.
3. The material proposed for placement is substantially the same as the substrate at the proposed disposal site and the site from which the material proposed for disposal is to be taken is far removed from known existing and historical sources of pollution as to provide reasonable assurance that such material has not been contaminated by such pollution.

The material proposed for dredging for the Skiffes Creek Channel project is primarily comprised of silts and clays; is not suitable for beach nourishment; and is not physically the same as the placement site sediments. Therefore, the proposed dredged material from the Skiffes Creek Channel does not meet the exclusionary criteria.

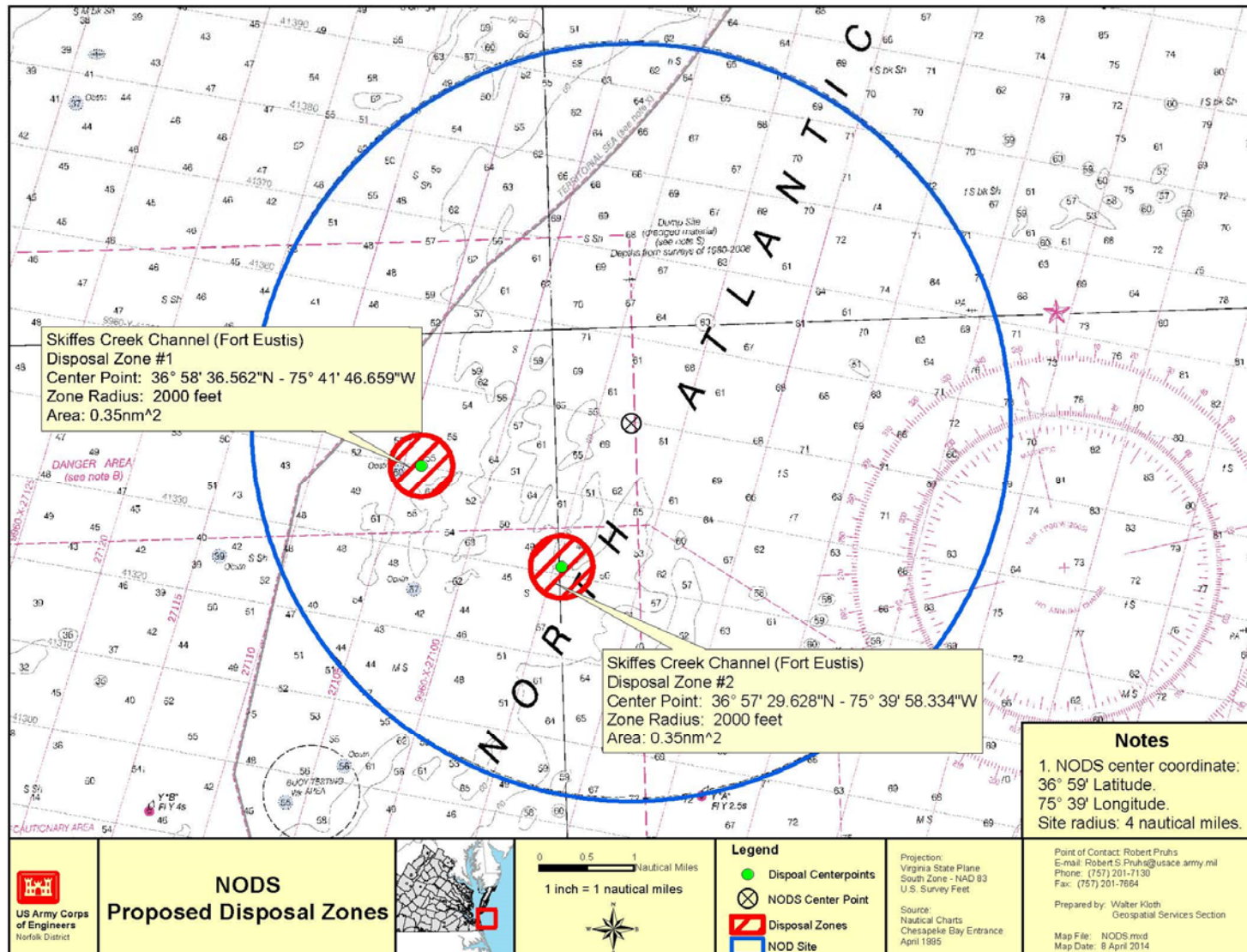


Figure 4. NODS Proposed Disposal Zones, Skiffes Creek Channel

3. NEED FOR TESTING FOR OCEAN PLACEMENT

a. Requirement for Testing. The Skiffes Creek Channel maintenance material consists primarily of a mixture of silts and clays, and does not fully meet the exclusionary criteria set forth under Section 40 CFR 227.13(b). Therefore, tiered testing in accordance with 40 CFR Section 227.32, and following protocols in *The Ocean Testing Manual* (USEPA/USACE 1991) and the *Mid-Atlantic Regional Implementation Manual: Dredged Material Evaluation for Norfolk and Dam Neck Ocean Disposal Sites* (USEPA Region 3 2000) was conducted to determine if the proposed dredged material from the Skiffes Creek Channel meets the limiting permissible concentration (LPC) for ocean placement.

b. Dates of Previous Dredging. The project under consideration is maintenance dredging. Previous maintenance dredging of the Skiffes Creek Channel was completed in 2004. At that time, the channel was dredged to a depth of -25 ft MLLW. Historically, maintenance dredging has been conducted at a frequency approximately every five to seven years. Approximately 725,000 cubic yards (cy) of dredged material were removed during the last maintenance dredging cycle and placed upland in the Fort Eustis Dredge Material Management Area (FEDMMA).

c. Results of Previous Testing. Chemical data for sediments proposed for dredging in the Fort Eustis navigation channel (Skiffes Creek Channel) are documented for two previous dredging events (Environmental Testing Services (ETS) 1987; IMS Environmental Services 2002). No ocean placement testing has previously been conducted for sediments in Skiffes Creek Channel.

In 1987, sediment cores were collected from seven (7) locations in the main navigation channel with a gravity corer to a depth of approximately 1 meter (m) (3 ft) (ETS 1987). Samples were split with two intervals (0-0.5 m and 0.5–1 m) and were analyzed for metals, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), cyanide, sulfide, extractable organic halogens (EOX), kepone, and polychlorinated biphenyls (PCBs). Results indicated detectable concentrations of cadmium, total chromium, nickel, and EOX. Comparison to current sediment quality guidelines (MacDonald et al. 1996) indicates that detected concentrations of cadmium were between the Threshold Effect Level (TEL) and Probable Effect Level (PEL) values, and detected concentrations of chromium and nickel did not exceed TELs. The majority of tested VOCs, SVOCs, and other organic constituents were not detected.

In 2002, eight sediment samples were collected in a proposed dredging area for pier reconstruction at Fort Eustis (IMS Environmental Services 2002). Direct push Geoprobe® sampling was conducted below the deck of the existing pier. Cores were collected to a depth of approximately -28 ft to -30 ft MLLW and were representative of approximately 6 ft to 9 ft below sediment surface. Sediment cores were composited and tested for metals, PCB aroclors, and chlorinated pesticides. Results were compared to USEPA Region 3 Risk-Based Concentrations (RBCs) – Industrial Standards (October 2001). Arsenic (ranging from 5.2 to 7.1 mg/kg) was the only constituent that exceeded the industrial RBC (3.82 mg/kg). An estimation factor (1/20) was used to determine an approximate Toxicity Characteristic Leachate Procedure (TCLP) concentration using the highest detected arsenic concentration. The estimated TCLP concentration for arsenic was 0.36 mg/L, which was below the TCLP threshold value of 5 mg/L.

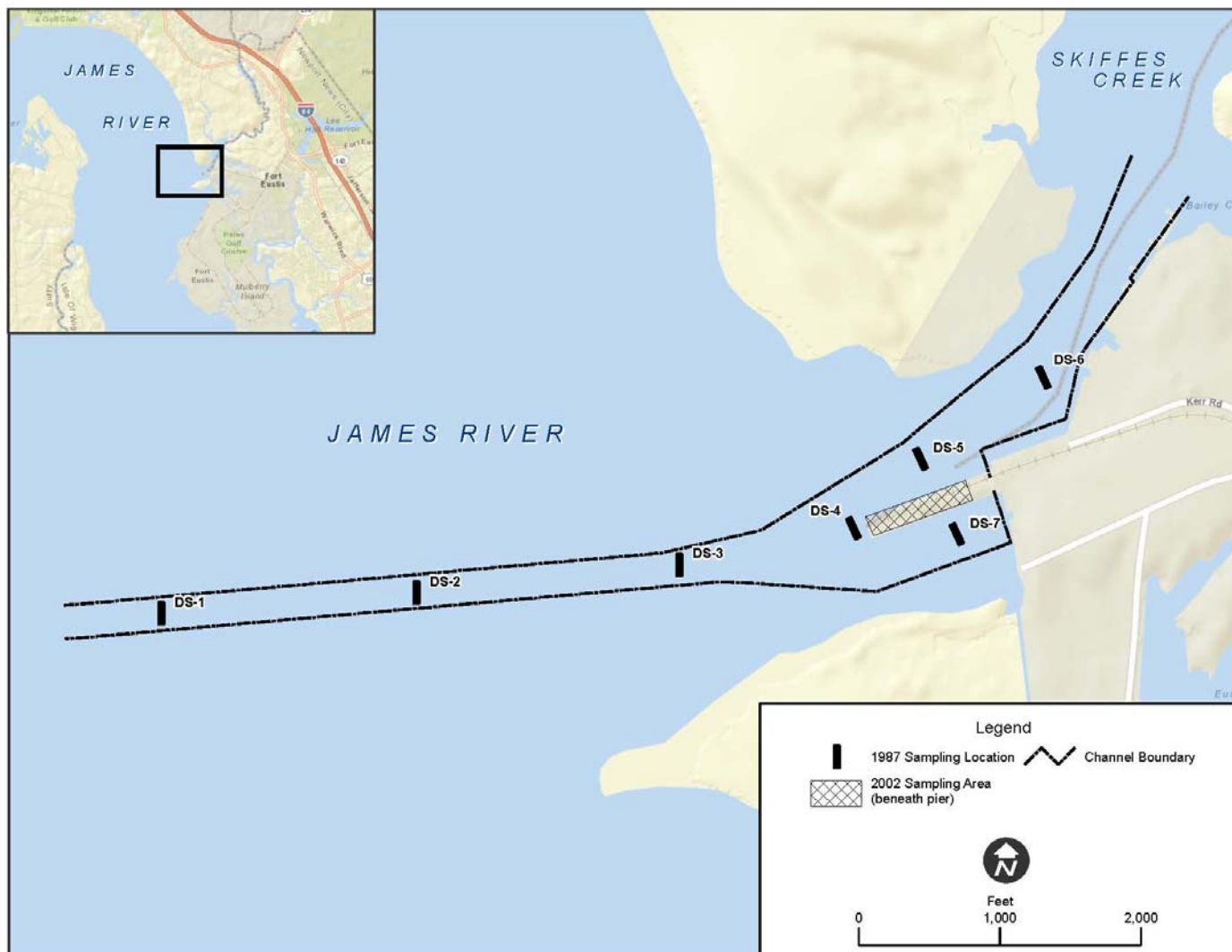


Figure 5. Locations for previous sampling events in Skiffes Creek Channel (Environmental Testing Services 1987; IMS Environmental Services 2002)

d. Locations for Previous Testing. Locations for previous testing are provided in Figure 5.

e. Recent Events Influencing Testing Results. There are no known recent events that have occurred in the vicinity of the project area immediately before or after the October 2013 sampling event.

4. WATER COLUMN DETERMINATIONS

In November through January 2013, tiered testing following protocols in *The Green Book* (USEPA/USACE 1991) and the *Mid-Atlantic Regional Implementation Manual* (USEPA Region 3 2000) was conducted for composite samples collected from locations within the proposed dredging area. Results of the studies and a description of the sampling and chemical testing methodologies are detailed in the Sampling and Analysis Plan (SAP) (EA 2013a) and in *Evaluation of Dredged Material: Skiffes Creek Channel, Fort Eustis, Newport News, Virginia* (EA 2014).

Sediment cores were collected from ten (10) locations, representing five dredging units, within the Skiffes Creek Channel using a vibracoring system. A Van Veen grab sampler was used to collect surface sediment from the Willoughby Bank reference site and from the USEPA-designated control site in the lower Chesapeake Bay (Figure 2). The site water/elutriate preparation water sample (SC-WAT) was collected from a single location near the mouth of Skiffes Creek. Receiving water was collected for one location in the Atlantic Ocean in the vicinity of the NODS (Figure 2).

a. Sediment Testing. Ten discrete samples (SC-01, SC-02, SC-03, SC-04, SC-05, SC-06, SC-07, SC-08, SC-09, and SC-10) and five composite samples each representing a dredging unit (DU1=SC-09/10, DU2=SC-07/08, DU3=SC-05/06, DU4=SC-03/04, and DU5=SC-01/02) were tested for physical and chemical constituents. Target analytes for the sediment testing were based on consultation with USEPA Region 3 and USACE-Norfolk District. Bulk sediments were tested for the following target constituents:

- metals,
- Polycyclic Aromatic Hydrocarbons (PAHs),
- PCB congeners,
- dioxins and furan congeners,
- chlorinated pesticides,
- organophosphorus pesticides,
- SVOCs,
- butyltins,
- ammonia (NH₃-N),
- total cyanide,
- total sulfide, and
- Total Organic Carbon (TOC).

In addition, the following physical analyses were conducted for the bulk sediment samples:

- grain size determination,

-
- specific gravity, and
 - moisture content.

Results of the physical and chemical testing of the bulk sediment from the Skiffes Creek Channel and comparisons to marine Sediment Quality Guidelines (SQGs) (MacDonald et al. 1996) are summarized in Tables 1 to 9. Detailed results of the bulk sediment testing are provided in *Evaluation of Dredged Material: Skiffes Creek Channel, Fort Eustis, Newport News, Virginia* (EA 2014).

b. Water Column Elutriate Testing. Five (5) standard elutriates from the Skiffes Creek Channel were prepared using the sediment composites (SC-01/02, SC-03/04, SC-05/06, SC-07/08, and SC-09/10) and the site water from Skiffes Creek. Results of the elutriate and site water chemical analyses and comparisons to USEPA saltwater acute water quality criteria for aquatic life (USEPA 2014) are summarized in Tables 10 to 17. Details of the elutriate analysis are provided in *Evaluation of Dredged Material: Skiffes Creek Channel, Fort Eustis, Newport News, Virginia* (EA 2014).

Elutriate preparation water (dredging site water) chemistry results indicated that several constituents were detected in the elutriate preparation water from the Skiffes Creek Channel. The majority of detected constituents were metals and none of the detected concentrations exceeded USEPA saltwater acute water quality criteria.

To determine the LPC compliance for dredged material from the Skiffes Creek Channel, the USACE Short-Term Fate of Dredged Material Disposal in Open Water (STFATE) model was used to model the behavior of the sediment during placement at the NODS (Attachment II). Modeling of the dilution rate using the specifications (i.e., dimensions and water column properties) of the NODS was conducted to confirm that sufficient dilution would be achieved within the 4-hour period inside the boundary of the NODS to achieve USEPA acute water quality standards. Receiving water concentrations at the NODS were used as background inputs for the STFATE model. The modeling initially assumed a placement volume of 4,000 cy of material placed per event. Additional model runs were performed to identify the maximum barge load per placement event for each dredging unit that would meet the LPC for both water quality criteria and water column toxicity.

c. Water Column Bioassays. Three water column species, *Mytilus galloprovincialis* (blue mussel), *Americamysis bahia* (opossum shrimp), and *Menidia beryllina* (inland silverside), were exposed to a standard dilution series of elutriates (100, 50, 10, and 1 percent) created from the project sediment composites. In addition, the elutriate preparation water (site water) and a laboratory control were tested in each of the water column bioassays. The blue mussel tests measured developmental effects to embryos, and the opossum shrimp and inland silverside tests measured effects to organism survival. The test protocols are detailed in the SAP (EA 2013a) and in *Evaluation of Dredged Material: Skiffes Creek Channel, Fort Eustis, Newport News, Virginia* (EA 2014). Results for water column bioassays are summarized in Table 18.

STFATE modeling was conducted using the specifications (i.e., dimensions and water column properties) of the NODS to determine if the results of the water column bioassays would meet

the water column LPC for ocean placement. The modeling initially assumed a placement volume of 4,000 cy of material placed per event. Additional model runs were performed to identify the maximum barge load per placement event for each dredging unit that would meet the LPC for water column toxicity.

5. BENTHC DETERMINATIONS

a. Benthic Toxicity Evaluation. Whole sediment bioassays were conducted using two benthic species, *Leptocheirus plumulosus* (estuarine amphipod) and *Neanthes arenaceodentata* (marine worm). The tests were conducted as static, non-renewal tests with 10 days of exposure to the whole sediments and overlying water and measured survival in channel sediment as compared to survival in the reference sediment. The test protocols are detailed in the SAP (EA 2013a) and in *Evaluation of Dredged Material: Skiffes Creek Channel, Fort Eustis, Newport News, Virginia* (EA 2014). Results for whole sediment bioassays are summarized in Table 19.

b. Benthic Bioaccumulation. Sediments from the Skiffes Creek Channel were evaluated in 28-day bioaccumulation studies with *Nereis virens* (sand worm) and *Macoma nasuta* (blunt-nose clam). The studies measured survival of the test organisms (Table 20) and the potential for bioaccumulation of contaminants in organism tissue as a result of exposure to Skiffes Creek Channel sediment samples. The bioaccumulation exposure protocols are detailed in the SAP (EA 2013a) and in *Evaluation of Dredged Material: Skiffes Creek Channel, Fort Eustis, Newport News, Virginia* (EA 2014).

Tissue Contaminant Analysis

Following review of the bulk sediment data and completion of the 28-day bioaccumulation exposures, USACE-Norfolk District consulted with USEPA Region 3 to determine the target constituents of concern for tissue analysis. USEPA Region 3 requested that the Skiffes Creek Channel tissue samples be analyzed for lipids, moisture content, metals, PAHs, PCB congeners, dioxin and furan congeners, and select chlorinated pesticides (DDD, DDE, DDT series) (Searfoss, USEPA Region 3, personal communication, January 2014). The results from individual replicates were evaluated to determine if there was variability (such as an outlier in the dataset) that could trigger statistical exceedances. Pre-test and reference tissues were also submitted for analysis. Additionally, detected concentrations of nonpolar organic constituents were lipid-normalized to account for partitioning of organic chemicals within organism tissue to facilitate comparison of data from different tissue replicates and comparisons to reference tissue and pre-test tissue concentrations.

Summary of Tissue Chemical Analyses for Skiffes Creek Channel

Dredging Unit (Sample Composite)	Chemical Analyses				
	Metals	PAHs	PCB Congeners	Dioxin/Furan Congeners	Chlorinated Pesticides*
Willoughby Bank Reference	X	X	X	X	X
Pre-Test and Control Tissue	X	X	X	X	X
DU5 (SC-01/02)	X	X	X	X	X
DU4 (SC-03/04)	X				X
DU3 (SC-05/06)	X				X
DU2 (SC-07/08)	X			X	
DU1 (SC-09/10)	X				

* an abbreviated list of chlorinated pesticides (DDE, DDD, DDT) was tested.

Tissue Chemistry Results

Detailed results of the tissue chemistry analysis are provided in *Evaluation of Dredged Material: Skiffes Creek Channel, Fort Eustis, Newport News, Virginia* (EA 2014). Results of the tissue analysis for *N. virens* and *M. nasuta* are summarized in Tables 21 to 25. Pre-test tissue concentrations that compare post-exposure tissue concentrations to pre-exposure tissue concentrations are also provided in Tables 21 to 25. Upper 95 percent confidence levels of the mean (UCLM) tissue-residue concentrations for applicable metals and chlorinated pesticides in worm and clam tissues exposed to the sediments from the Skiffes Creek Channel project were compared to U.S. Food and Drug Administration (USFDA) Values (USFDA 2001) (Table 26). None of the UCLM values for the Skiffes Creek Channel project tissues exceeded the USFDA Action/Guidance/Tolerance Values.

6. RESULTS FOR EACH DREDGING UNIT

a. Dredging Unit 1 (SC-09/10)

Dredging Unit 1 (DU1) represents area from station 2+00 to 13+00 in the western portion of the channel in the James River (Figure 1). DU1 requires the removal of approximately 65,000 cy of maintenance dredged material.

Two locations (SC-09 and SC-10) were sampled in DU1 and a composite sample (SC-09/10) was tested for ocean placement. The results of the bulk sediment analysis indicated that concentrations of four metals (copper, lead, mercury, and zinc) and total PCBs (ND=RL) were between the TEL and PEL values (Tables 3B and 5B). None of the tested constituents exceeded PEL values.

Water Quality Criteria (WQC)

In the standard elutriate, the ammonia concentration exceeded the USEPA saltwater acute water quality criterion (4.91 micrograms per liter [µg/L]) by a factor of 4.1 (Table 10). Receiving water concentrations at the NODS were used as background inputs for the STFATE model, and the model output indicated that ammonia required a dilution of 3.2 to meet the water quality criteria LPC. STFATE modeling (Attachment II) indicated that the required dilution would occur within four hours following placement at the NODS and the plume would stay within the

site boundary. *Therefore, the standard elutriate from Skiffes Creek Channel DU1 meets the LPC for water quality criteria.*

Water Column Toxicity

The water column bioassay for *M. galloprovincialis* had an EC₅₀ of 24.2 percent elutriate, and the median lethal concentrations (LC₅₀) for the *A. bahia* and *M. beryllina* bioassays were both greater than 100 percent elutriate (Table 18). Based on the EC₅₀ for *M. galloprovincialis*, a 413-fold dilution is required to meet the LPC compliance for water column toxicity. The STFATE model indicated that a 417-fold dilution would occur within four hours with a placement event of 5,600 cy of dredged material (Attachment II). *Therefore, based on the results of the STFATE modeling of water column toxicity, the Skiffes Creek Channel DU1 elutriate meets the LPC for water column toxicity for placement volumes up to 5,600 cy.*

Benthic Toxicity

Survival in the whole sediment bioassays for DU1 (SC-09/10) was not statistically different from the reference site for either *N. arenaceodentata* or *L. plumulosus* (Table 20). *Therefore, the Skiffes Creek Channel DU1 sediments meet the LPC for benthic toxicity.*

Benthic Bioaccumulation

The mean concentration of nickel in clam tissue for DU1 (SC-09/10) statistically exceeded the mean reference site and pre-test concentration (Table 21). The UCLM for nickel, however, did not exceed the USEPA Region 4 Background Concentration for nickel (USEPA/USACE 2008) (Table 27).

Based on the assessment of metals in tissues exposed to DU1 sediments, it is not anticipated that the ocean placement of the dredged material at the NODS will result in ecologically significant bioaccumulation. *Therefore, the dredged material from Skiffes Creek Channel DU1 (SC-09/10) meets the LPC for benthic bioaccumulation, and complies with the benthic criteria of 40 CFR Part 227.13 (c) (3).*

Sediments from the Skiffes Creek Channel Dredging Unit 1 (SC-09/10) meet the criteria for the LPC for WQC, water column toxicity, benthic toxicity, and benthic bioaccumulation, indicating that ocean placement of the dredged material is a viable placement option. Based on the results of the STFATE modeling, a barge volume up to 5,600 cy complies with the LPC.

b. Dredging Unit 2 (SC-07/08)

Dredging Unit 2 (DU2) represents area from station 13+00 to 21+00 in the western portion of the channel in the James River (Figure 1). DU2 requires the removal of approximately 50,000 cy of maintenance dredged material.

Two locations (SC-07 and SC-08) were sampled in DU2 and a composite sample (SC-07/08) was tested for ocean placement. The results of the bulk sediment analysis indicated that concentrations of five metals (copper, lead, nickel, mercury, and zinc), and total PCBs (ND=RL) had concentrations between TEL and PEL values (Tables 3B and 5B). None of the tested constituents exceeded PEL values.

Water Quality Criteria (WQC)

In the standard elutriate, the ammonia concentration exceeded the USEPA saltwater acute water quality criterion (4.91 micrograms per liter [µg/L]) by a factor of 4.1 (Table 10). Receiving water concentrations at the NODS were used as background inputs for the STFATE model, and the model output indicated that ammonia required a dilution of 3.2 to meet the water quality criteria LPC. STFATE modeling (Attachment II) indicated that the required dilution would occur within four hours following placement at the NODS and the plume would stay within the site boundary. *Therefore, the standard elutriate from Skiffes Creek Channel DU2 meets the LPC for water quality criteria.*

Water Column Toxicity

The water column bioassay for *M. galloprovincialis* had an EC₅₀ of 27.6 percent elutriate, and the median lethal concentrations (LC₅₀) for the *A. bahia* and *M. beryllina* bioassays were both greater than 100 percent elutriate (Table 18). Based on the EC₅₀ for *M. galloprovincialis*, a 362-fold dilution is required to meet the LPC compliance for water column toxicity. The STFATE model indicated that a 365-fold dilution would occur within four hours with a placement event of 6,800 cy of dredged material (Attachment II). *Therefore, based on the results of the STFATE modeling of water column toxicity, the Skiffes Creek Channel DU2 elutriate meets the LPC for water column toxicity for placement volumes up to 6,800 cy.*

Benthic Toxicity

Survival in the whole sediment bioassays for DU2 (SC-07/08) was not statistically different from the reference site for either *N. arenaceodentata* or *L. plumulosus* (Table 20). *Therefore, the Skiffes Creek Channel DU2 sediments meet the LPC for benthic toxicity.*

Benthic Bioaccumulation

The mean concentration of OCDD in clam tissue (*M. nasuta*) for DU2 (SC-07/08) statistically exceeded the mean reference site and pre-test concentrations (Table 24). The mean dioxin TEQ (ND=RL) did not statistically exceed the mean reference site or pre-test TEQ (ND=RL).

Based on the assessment of metals and dioxin/furan congeners in tissues exposed to DU2 sediments, it is not anticipated that the ocean placement of the dredged material at the NODS will result in ecologically significant bioaccumulation. *Therefore, the dredged material from Skiffes Creek Channel DU2 (SC-07/08) meets the LPC for benthic bioaccumulation, and complies with the benthic criteria of 40 CFR Part 227.13 (c) (3).*

Sediments from the Skiffes Creek Channel Dredging Unit 2 (SC-07/08) meet the criteria for the LPC for WQC, water column toxicity, benthic toxicity, and benthic bioaccumulation, indicating that ocean placement of the dredged material is a viable placement option. Based on the results of the STFATE modeling, a barge volume up to 6,800 cy complies with the LPC.

c. Dredging Unit 3 (SC-05/06)

Dredging Unit 3 (DU3) represents area from station 21+00 to 40+00 in the portion of the channel located immediately west of the mouth of Skiffes Creek (Figure 1). DU3 requires the removal of approximately 60,000 cy of maintenance dredged material.

Two locations (SC-05 and SC-06) were sampled in DU3 and a composite sample (SC-05/06) was tested for ocean placement. The results of the bulk sediment analysis indicated that concentrations of four metals (copper, lead, nickel, and zinc), one (1) individual PAH (acenaphthylene), and total PCBs (ND=RL) had concentrations between TEL and PEL values (Tables 3A, 4A, and 5A). None of the tested constituents exceeded PEL values.

Water Quality Criteria (WQC)

In the standard elutriate, the ammonia concentration exceeded the USEPA saltwater acute water quality criterion (4.91 micrograms per liter [$\mu\text{g/L}$]) by a factor of 3.1 (Table 10). Receiving water concentrations at the NODS were used as background inputs for the STFATE model, and the model output indicated that ammonia required a dilution of 2.1 to meet the water quality criteria LPC. STFATE modeling (Attachment II) indicated that the required dilution would occur within four hours following placement at the NODS and the plume would stay within the site boundary. *Therefore, the standard elutriate from Skiffes Creek Channel DU3 meets the LPC for water quality criteria.*

Water Column Toxicity

The water column bioassay for *M. galloprovincialis* had an EC_{50} of 26.3 percent elutriate, and the median lethal concentrations (LC_{50}) for the *A. bahia* and *M. beryllina* bioassays were both greater than 100 percent elutriate (Table 18). Based on the EC_{50} for *M. galloprovincialis*, a 380-fold dilution is required to meet the LPC compliance for water column toxicity. The STFATE model indicated that a 382-fold dilution would occur within four hours with a placement event of 6,500 cy of dredged material (Attachment II). *Therefore, based on the results of the STFATE modeling of water column toxicity, the Skiffes Creek Channel DU3 elutriate meets the LPC for water column toxicity for placement volumes up to 6,500 cy.*

Benthic Toxicity

Survival in the whole sediment bioassays for DU3 (SC-05/06) was not statistically different from the reference site for either *N. arenaceodentata* or *L. plumulosus* (Table 20). *Therefore, the Skiffes Creek Channel DU3 sediments meet the LPC for benthic toxicity.*

Benthic Bioaccumulation

The mean concentration of nickel in clam tissue for DU3 (SC-05/06) statistically exceeded the mean reference site and pre-test concentration (Table 21). The UCLM for nickel, however, did not exceed the USEPA Region 4 Background Concentration for nickel (USEPA/USACE 2008) (Table 27).

Based on the assessment of metals and select chlorinated pesticides in tissues exposed to DU3 sediments, it is not anticipated that the ocean placement of the dredged material at the NODS will result in ecologically significant bioaccumulation. *Therefore, the dredged material from*

Skiffes Creek Channel DU3 (SC-05/06) meets the LPC for benthic bioaccumulation, and complies with the benthic criteria of 40 CFR Part 227.13 (c) (3).

Sediments from the Skiffes Creek Channel Dredging Unit 3 (SC-05/06) meet the criteria for the LPC for WQC, water column toxicity, benthic toxicity, and benthic bioaccumulation, indicating that ocean placement of the dredged material is a viable placement option. Based on the results of the STFATE modeling, a barge volume up to 6,500 cy complies with the LPC.

c. Dredging Unit 4 (SC-03/04)

Dredging Unit 4 (DU4) represents area from station 40+00 to 59+00 in the portion of the channel and bend located at the mouth of Skiffes Creek (Figure 1). DU4 requires the removal of approximately 95,000 cy of maintenance dredged material.

Two locations (SC-03 and SC-04) were sampled in DU4 and a composite sample (SC-03/04) was tested for ocean placement. The results of the bulk sediment analysis indicated that concentrations of four metals (copper, lead, nickel, and zinc), one (1) individual PAH (acenaphthylene), and total PCBs (ND=RL) had concentrations between TEL and PEL values (Table 3A, 4A, and 5A). None of the tested constituents exceeded PEL values.

Water Quality Criteria (WQC)

In the standard elutriate, the ammonia concentration exceeded the USEPA saltwater acute water quality criterion (4.91 micrograms per liter [µg/L]) by a factor of 3.3 (Table 10). Receiving water concentrations at the NODS were used as background inputs for the STFATE model, and the model output indicated that ammonia required a dilution of 2.3 to meet the water quality criteria LPC. STFATE modeling (Attachment II) indicated that the required dilution would occur within four hours following placement at the NODS and the plume would stay within the site boundary. *Therefore, the standard elutriate from Skiffes Creek Channel DU4 meets the LPC for water quality criteria.*

Water Column Toxicity

The water column bioassay for *M. galloprovincialis* had an EC₅₀ of 23.1 percent elutriate, and the median lethal concentrations (LC₅₀) for the *A. bahia* and *M. beryllina* bioassays were both greater than 100 percent elutriate (Table 18). Based on the EC₅₀ for *M. galloprovincialis*, a 433-fold dilution is required to meet the LPC compliance for water column toxicity. The STFATE model indicated that a 438-fold dilution would occur within four hours with a placement event of 4,900 cy of dredged material (Attachment II). *Therefore, based on the results of the STFATE modeling of water column toxicity, the Skiffes Creek Channel DU4 elutriate meets the LPC for water column toxicity for placement volumes up to 4,900 cy.*

Benthic Toxicity

Survival in the whole sediment bioassays for DU4 (SC-03/04) was not statistically different from the reference site for either *N. arenaceodentata* or *L. plumulosus* (Table 20). *Therefore, the Skiffes Creek Channel DU4 sediments meet the LPC for benthic toxicity.*

Benthic Bioaccumulation

None of the mean concentrations of constituents detected in the clam or worm tissue from DU4 (SC-03/04) statistically exceeded the mean reference site and pre-test concentrations (Tables 21 to 25).

Based on the assessment of metals and select chlorinated pesticides in tissues exposed to DU4 sediments, it is not anticipated that the ocean placement of the dredged material at the NODS will result in ecologically significant bioaccumulation. *Therefore, the dredged material from Skiffes Creek Channel DU4 (SC-03/04) meets the LPC for benthic bioaccumulation, and complies with the benthic criteria of 40 CFR Part 227.13 (c) (3).*

Sediments from the Skiffes Creek Channel Dredging Unit 4 (SC-03/04) meet the criteria for the LPC for WQC, water column toxicity, benthic toxicity, and benthic bioaccumulation, indicating that ocean placement of the dredged material is a viable placement option. Based on the results of the STFATE modeling, a barge volume up to 4,900 cy complies with the LPC.

e. Dredging Unit 5 (SC-01/02)

Dredging Unit 5 (DU5) represents area from station 59+00 to 66+63 inside and northeast of the mouth of Skiffes Creek (Figure 1). DU5 requires the removal of approximately 55,000 cy of maintenance dredged material.

Two locations (SC-01 and SC-02) were sampled in DU5 and a composite sample (SC-01/02) was tested for ocean placement. The results of the bulk sediment analysis indicated that concentrations of four metals (copper, lead, nickel, and zinc), nine (9) individual PAHs, total PAHs, and total PCBs (ND=RL) had concentrations between TEL and PEL values (Tables 3A, 4A, and 5A). None of the tested constituents exceeded PEL values.

Water Quality Criteria (WQC)

In the standard elutriate, the ammonia concentration exceeded the USEPA saltwater acute water quality criterion (4.91 micrograms per liter [µg/L]) by a factor of 3.8 (Table 10). Receiving water concentrations at the NODS were used as background inputs for the STFATE model, and the model output indicated that ammonia required a dilution of 2.9 to meet the water quality criteria LPC. STFATE modeling (Attachment II) indicated that the required dilution would occur within four hours following placement at the NODS and the plume would stay within the site boundary. *Therefore, the standard elutriate from Skiffes Creek Channel DU5 meets the LPC for water quality criteria.*

Water Column Toxicity

The water column bioassay for *M. galloprovincialis* had an EC₅₀ of 22.5 percent elutriate, and the median lethal concentrations (LC₅₀) for the *A. bahia* and *M. beryllina* bioassays were both greater than 100 percent elutriate (Table 18). Based on the EC₅₀ for *M. galloprovincialis*, a 444-fold dilution is required to meet the LPC compliance for water column toxicity. The STFATE model indicated that a 449-fold dilution would occur within four hours with a placement event of 4,600 cy of dredged material (Attachment II). *Therefore, based on the results of the STFATE*

modeling of water column toxicity, the Skiffes Creek Channel DU5 elutriate meets the LPC for water column toxicity for placement volumes up to 4,600 cy.

Benthic Toxicity

Survival in the whole sediment bioassays for DU5 (SC-01/02) was not statistically different from the reference site for either *N. arenaceodentata* or *L. plumulosus* (Table 20). *Therefore, the Skiffes Creek Channel DU5 sediments meet the LPC for benthic toxicity.*

Benthic Bioaccumulation

The mean concentrations of OCDD in both clam and worm tissue for DU5 (SC-01/02) statistically exceeded the mean reference site and pre-test concentrations (Table 24). The mean dioxin TEQ (ND=RL) did not statistically exceed the mean reference site or pre-test TEQ (ND=RL) for either clams or worms.

Based on the assessment of metals, PAHs, PCB congeners, dioxin/furan congeners, and select chlorinated pesticides in tissues exposed to DU5 sediments, it is not anticipated that the ocean placement of the dredged material at the NODS will result in ecologically significant bioaccumulation. *Therefore, the dredged material from Skiffes Creek Channel DU5 (SC-01/02) meets the LPC for benthic bioaccumulation, and complies with the benthic criteria of 40 CFR Part 227.13 (c) (3).*

Sediments from the Skiffes Creek Channel Dredging Unit 5 (SC-01/02) meet the criteria for the LPC for WQC, water column toxicity, benthic toxicity, and benthic bioaccumulation, indicating that ocean placement of the dredged material is a viable placement option. Based on the results of the STFATE modeling, a barge volume up to 4,600 cy complies with the LPC.

7. MPRSA SECTION 103 OCEAN DISPOSAL CRITERIA COMPLIANCE EVALUATION

a. Compliance With 40 CFR Part 227 Subpart B – Environmental Impact. The following criteria were evaluated to determine that the proposed dredged material placement would not degrade the marine environment, and that the dredged material placement would not produce an unacceptable adverse effect on human health or on the ocean for other future uses.

- 1) The material to be dredged from the project area does not contain any of the prohibited materials listed in 40 CFR Section 227.5 including radioactive waste, material used in radiological, chemical or biological warfare, or persistent inert synthetic or natural materials that may float and thus interfere with legitimate uses of the ocean. In addition, the material has been sufficiently described to make this determination.
- 2) The material does not contain any of the constituents prohibited as other than trace contaminants listed in 40 CFR Section 227.6 including organohalogen compounds, mercury and mercury compounds, cadmium and cadmium compounds, oil, or known carcinogens, mutagens, or teratogens.

-
- 3) The material to be placed in the NODS is composed of naturally occurring sediment to be dredged from waters of the U.S. and does not meet the definition of waste materials listed in 40 CFR Section 227.7.
 - 4) The material does not contain toxic waste as regulated under 40 CFR Section 227.8.
 - 5) Although large quantities of dredged material are proposed for placement at the NODS, the site was designated with these quantities in mind and was located in an area and sized such that unacceptable impacts would not occur as described in 40 CFR Section 227.9.
 - 6) The designation of the NODS took into account possible hazards to fishing, navigation, shorelines, and beaches. The material proposed for placement at the NODS will be placed in such a manner as to not result in adverse impacts to the listed resources and as not to interfere with coastal navigation as described in 40 CFR Section 227.10.
 - 7) The material proposed for placement at the NODS is not required to be containerized as described in 40 CFR Section 227.11.
 - 8) The dredged material does not contain any inert synthetic or natural material that may float or remain in suspension. Dredged material is natural sediment dredged from the waterways of the U.S. and is not considered to be solid waste as described in 40 CFR Section 227.12.

The materials to be dredged from the project area were not considered to meet the exclusionary criteria. Appropriate testing has been performed and is described in earlier sections of this Section 103 Evaluation. The material has been determined to be in compliance with the requirements of 40 CFR Section 227.6 and there would be no violation of marine water quality criteria after the allowance for mixing. Bioassays on the suspended particulate phase (elutriate) and solid phase (whole sediment bioassay) show that the material can be discharged so as not to exceed the LPC described in paragraph (b) of 40 CFR Section 227.27.

b. Compliance With 40 CFR Part 227 Subpart C – Need for Ocean Disposal.

Materials from previous maintenance dredging of Skiffes Creek Channel have been placed upland at the Fort Eustis Dredge Material Management Area (FEDMMA). The FEDMMA is currently at capacity and will require new construction to build future capacity. The FEDMMA site construction is scheduled for fiscal year (FY) 2015 and will not be available for dredged material placement until FY 2016.

Upland placement at privately-owned upland facilities (such as Port Tobacco at Weanack-Shirley Plantation) and upland landfill disposal were both considered as placement options for the dredged material from the Skiffes Creek Channel. The dredged material meets the Proposed Virginia Exclusionary Criteria requirements for upland placement at Port Tobacco at Weanack, the requirements for upland placement at some regional landfills, and the requirements for ocean placement at the NODS. Upland dredged material placement capacity is limited in the southern

Virginia region and is preferential for projects with contaminated sediments that cannot meet the requirements for ocean or open-water placement.

Beneficial use (ex., beach nourishment and shoreline stabilization) was also considered as a placement option for the dredged material from Skiffes Creek Channel. The dredged material from the project site is primarily comprised of fine-grained silts and clays that are not suitable for beneficial use projects, particularly in high-energy environments.

In addition to the NODS, another alternative identified to be feasible for dredged material placement of sediments from the Skiffes Creek Channel was Craney Island Dredged Material Management Area (CIDMMA). Dredged material from the Skiffes Creek Channel is precluded from placement at CIDMMA because CIDMMA is restricted to placement of material from dredging to support navigation in Norfolk Harbor and adjacent waters [U.S. Army Corps of Engineers (USACE)-Norfolk District Policy Memorandum WRD-01]. Material from non-navigation transportation projects and projects beyond CIDMMA's geographic service area are specifically precluded from placement at CIDMMA unless the material is clean and needed for dike construction. Physical and chemical testing of the dredged material from the Skiffes Creek Channel indicated that the sediments would not be suitable for dike construction at CIDMMA.

Therefore, because of the need to reserve limited upland placement capacity within the region for future projects with contaminated sediment, because the Skiffes Creek Channel material meets the ocean placement criteria, and because that material is not located within the geographic area approved for placement at CIDMMA nor is the dredged material suitable for dike construction at CIDMMA, placement of the dredged material at the NODS is the most viable option. Following the guidance in the *Ocean Testing Manual* (USEPA/USACE 1991), Tier II and Tier III testing was completed by examining physical and chemical properties of the sediment, water column and whole sediment bioassays, and bioaccumulation potential (tissue chemistry) (EA 2014). Because the material meets the ocean placement requirements and because the NODS has sufficient capacity for the material, the most viable option for the dredged material from Skiffes Creek Channel is ocean placement at the NODS. Ocean placement of the dredged material from Skiffes Creek Channel will reserve upland placement capacity for contaminated sediments and will be protective of the resources at the NODS.

c. Compliance With 40 CFR Part 227 Subpart D – Impact of the Proposed Dumping on Aesthetic, Recreational, and Economic Values. The following factors have been considered in making the determination that the proposed placement will not impact aesthetic, recreational, or economic values of the Atlantic Ocean in the vicinity of the NODS:

- 1) The area has been used in the past for the placement of dredged material and has not resulted in negative impacts to potential recreational or commercial activities. The Chesapeake Light Tower is located approximately 2 statute miles south/southeast of the NODS and is a heavily utilized recreational fishing area during the summer months. In addition, the mound configurations proposed for similar placement activities have been shown to benefit fish by creating structure in an otherwise flat sea bottom.

-
- 2) Based on past use of the area and the characteristics of the material proposed for placement, no impact to water quality is to be expected. The material will be discharged from bottom dump scows with the initial point of discharge being approximately 14 ft below the surface of the water. Based on results of the STFATE model, no applicable water quality standards will be violated by the proposed activity.
 - 3) The material proposed for discharge contains substantial quantities of silt and clay. The point of initial discharge is below the surface of the water and because the material is somewhat consolidated, the majority of the material will be entrained into the disposal surge, which is in a downward direction because of gravity. Studies indicate that any turbidity caused by placement is restricted to the immediate vicinity of the dump scow and persists for only a short period of time.
 - 4) Pathogenic organisms are not expected to be present in the material. However, if present they would likely be fecal coliforms that are killed by saline waters and therefore would not pose any impact to fisheries. No shellfisheries are located in the vicinity of the NODS.
 - 5) No toxic chemical constituents are present in the dredged material in concentrations suspected of affecting humans either directly or indirectly through the food chain. There are no constituents in the dredged material that would impact living marine resources of any value.

d. Compliance With 40 CFR Part 227 Subpart E – Impact of the Proposed Dumping on Other Uses of the Ocean. The proposed placement of dredged material in the NODS would have no long-term impact on any other uses of the ocean including, but not limited to, commercial and recreational fishing, commercial and recreational navigation, mineral exploration or development, or scientific research. Short-term impacts may occur because of the presence of the tugs and scows in the NODS; however, this is short term and all uses of the ocean would continue to use the area between placement events. No irreversible or irretrievable commitment of resources would result from the proposed material placement.

8. MPRSA SECTION 103 CONDITIONS

a. Requirements to Meet Ocean Disposal Criteria. The placement of maintenance sediments from each Skiffes Creek Channel dredging unit will be limited to the maximum placement volumes as determined by the STFATE model to ensure compliance with the LPC for water column toxicity. No other special requirements have been designated.

b. Requirements of Site Designation Conditions. Placement shall occur no less than 330 ft (100 meters) inside the NODS boundaries to comply with 40 CFR 227.28. Two placement zones within the NODS have been designated for the project sediment by USEPA Region 3 and USACE-Norfolk District (Figure 4). Placement will target even distribution of the dredged material across the placement zone. Before and after placement bathymetric surveys of the designated placement zone within the NODS will be performed. Other bathymetric surveys may

be performed as warranted should concerns be raised concerning the placement of dredged material.

c. Requirements of the Site Monitoring and Management Plan (SMMP). The SMMP was recently renewed by USEPA Region 3 and USACE-Norfolk District. Because the dredging will be conducted mechanically (bucket dredge), it is not anticipated that monitoring and precautions necessary to protect sea turtles will be required. It is not anticipated that placement operations will impact sea turtles or other marine mammals. Placement activities (vessel traffic to and from the NODS from the Skiffes Creek Channel project site) will be conducted in compliance with the NOAA Fisheries Right Whale Ship Strike Reduction Rule (50 CFR 224.105), which limits vessels greater than 65 ft to speeds less than 10 knots during migration and calving periods.

9. REFERENCES

- Canadian Council of Ministers of the Environment. 2001. *Canadian sediment quality guidelines for the protection of aquatic life: Polychlorinated dioxins and furans (PCDD/Fs)*. In: Canadian environmental guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg.
- EA Engineering, Science, and Technology, Inc. (EA). 2009. *Evaluation of Dredged Material: Craney Island Eastward Expansion (CIEE) Pre-Dredge Area*. Prepared for USACE – Norfolk. May.
- EA Engineering, Science, and Technology, Inc. (EA). 2010a. *Evaluation of Dredged Material: Atlantic Ocean Channel*. Prepared for USACE-Norfolk District. June.
- EA Engineering, Science, and Technology, Inc. (EA). 2010b. *Evaluation of Dredged Material: Thimble Shoal Channel*. Prepared for USACE-Norfolk District. June.
- EA Engineering, Science, and Technology, Inc. (EA). 2010c. *Evaluation of Dredged Material: Norfolk Inner Harbor Channel – Norfolk Harbor Reach and Craney Island Reach*. Prepared for USACE-Norfolk District. June.
- EA Engineering, Science, and Technology, Inc. (EA). 2011. *Evaluation of Dredged Material for Ocean Placement: Midtown Tunnel/Downtown Tunnel/MLK Expressway Project*. Prepared for PB Americas. August.
- EA Engineering, Science, and Technology, Inc. (EA). 2012. *Evaluation of Proposed Dredged Material: Cheatham Annex CAD-A Pier Slips, York River, Virginia., Virginia*. Prepared for NAVFAC-MidAtlantic. March.
- EA Engineering, Science, and Technology, Inc. (EA). 2013a. *Sampling and Analysis Plan, Evaluation of Dredged Material: Skiffes Creek Channel, Fort Eustis, Newport News, Virginia*. Prepared for USACE-Norfolk District. October.

-
- EA Engineering, Science, and Technology, Inc. (EA). 2013b. *Evaluation of Proposed Dredged Material: Pier R3, Naval Weapons Station Yorktown, York River, Virginia..* Prepared for NAVFAC-MidAtlantic. January.
- EA Engineering, Science, and Technology, Inc. (EA). 2014. *Evaluation of Dredged Material: Skiffes Creek Channel, Fort Eustis, Newport News, Virginia* (EA 2014). Prepared for USACE-Norfolk District. May. Final.
- Environmental Testing Services, Inc. 1987. *The Chemical Characterization of Sediment Cores from Dredge and Disposal Sites Located at Fort Eustis, Virginia.* Prepared for Langley and McDonald Engineering and Consultants. Final Report. November.
- IMS Environmental Services. 2002. *Sediment Sampling Report: United States Army Corps of Engineers, Norfolk District, Third Port Pier, Fort Eustis, Newport News, Virginia.* Prepared for USACE-Norfolk District. April.
- MacDonald, DD, RS Carr, FD Calder, ER Long, and CG Ingersoll. 1996. Development and evaluation of sediment quality guidelines for Florida coastal waters. *Ecotoxicology* 5:253-278.
- U.S. Army Corps of Engineers (USACE) / U.S. Environmental Protection Agency (USEPA). 1991. *Evaluation of Dredged Material Proposed for Ocean Disposal.* EPA-503/8-91/001. "The Green Book" (Ocean Testing Manual).
- U.S. Army Corps of Engineers (USACE) / U.S. Environmental Protection Agency (USEPA). 1998. *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Inland Testing Manual (ITM).* EPA-823-B-98-004.
- U.S. Army Corps of Engineers (USACE) / U.S. Environmental Protection Agency (USEPA). 2009. *Site Management and Monitoring Plan for the Norfolk Ocean Disposal Site (Norfolk ODMDS).* February.
- U.S. Army Corps of Engineers, Norfolk District / Virginia Port Authority (USACE-Norfolk District/VPA). 2008. *Dredged Material Management Plan for Craney Island Eastward Expansion and Craney Island Dredged Material Management Area.* Prepared by Craney Island Design Partners. June.
- U.S. Environmental Protection Agency (USEPA). 1992. Final Environmental Impact Statement (FEIS) *The Designation of an Ocean Dredged Material Site Offshore, Norfolk, Virginia.* November.
- U.S. Environmental Protection Agency (USEPA). 2014. *National Recommended Water Quality Criteria.* Office of Water.
- U.S. Environmental Protection Agency (USEPA) Region 3. Personal Communication. Searfoss, Renee. January 2014.
-

-
- U.S. Environmental Protection Agency (USEPA) Region 3. 2000. *Mid-Atlantic Regional Implementation Manual: Dredged Material Evaluation for Norfolk and Dam Neck Ocean Disposal Sites*.
- U.S. Environmental Protection Agency (USEPA) / U.S. Army Corps of Engineers (USACE). 2008. *Southeast Regional Implementation Manual (SERIM) for Requirements and Procedures for Evaluation of Ocean Disposal of Dredged Material in Southeastern U.S. Atlantic and Gulf Coast Waters*. EPA 904-B-08-001. US Environmental Protection Agency, Region 4 and US Army Corps of Engineers, South Atlantic Division, Atlanta, GA.
- U.S. Food and Drug Administration (USFDA). 2001. *Fish and Fishery Products Hazards and Controls Guidance. Third Edition*. USFDA, Center for Food Safety and Applied Nutrition. June.
- Van den Berg, M, L. Birnbaum, M. Denison, M. DeVito, W. Farland, M. Feeley, H. Fiedler, H. Hakansson, A. Hanberg, L. Haws, M. Rose, S. Safe, D. Schrenk, C. Tohyama, A. Tritscher, J. Tuomisto, M. Tysklind, N. Walker, and R. Peterson. 2006. The 2005 World Health Organization reevaluation of human and mammalian toxic equivalency factors for dioxins and dioxin-like compounds. *Toxicological Sciences* 93(2): 223-241.

TABLE 1A. PHYSICAL CHARACTERISTICS OF SEDIMENT
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

Analyte	Unit	Willoughby Bank Reference Site	Dredging Unit 5				Dredging Unit 4			Dredging Unit 3		
			SC-01	SC-01 Field Duplicate	SC-02	SC-01/02	SC-03	SC-04	SC-03/04	SC-05	SC-06	SC-05/06
GRAVEL	%	2.3	--	--	--	--	--	--	--	--	--	--
SAND	%	74.3	16.9	13.9	10.6	15.2	12.4	18	14.3	3.7	1.5	3.2
Coarse Sand	%	0.8	0.3	0.4	0	0	0	0	0	0.1	0	0
Medium Sand	%	3	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1
Fine Sand	%	70.5	16.5	13.4	10.4	15.1	12.2	17.8	14.1	3.5	1.4	3.1
SILT	%	18.9	50.7	50.8	49.6	41.7	48.2	45.4	38	54.9	50.7	47.8
CLAY	%	4.5	32.4	35.3	39.8	43.1	39.4	36.6	47.7	41.4	47.8	49
SILT+CLAY	%	23.4	83.1	86.1	89.4	84.8	87.6	82	85.7	96.3	98.5	96.8
SPECIFIC GRAVITY	--	2.68	2.67	2.68	2.68	2.63	2.68	2.69	2.66	2.7	2.65	2.64
PERCENT MOISTURE	%	30.3	47.5	47.2	58.4	55.6	56.6	57.9	57.3	63.1	62.2	62.4

TABLE 1B. PHYSICAL CHARACTERISTICS OF SEDIMENT**SKIFFES CREEK, NEWPORT NEWS, VIRGINIA**

Analyte	Unit	Willoughby Bank Reference Site	Dredging Unit 2			Dredging Unit 1		
			SC-07	SC-08	SC-07/08	SC-09	SC-10	SC-09/10
GRAVEL	%	2.3	--	--	--	--	--	--
SAND	%	74.3	1.9	1.6	0.7	1.9	0.8	2.3
Coarse Sand	%	0.8	0	0	0	0	0	0
Medium Sand	%	3	0.1	0.6	0	0.1	0	0.1
Fine Sand	%	70.5	1.8	1	0.7	1.8	0.8	2.2
SILT	%	18.9	46.2	40.1	43.4	44	40.1	46.2
CLAY	%	4.5	51.9	58.3	55.9	54.1	59.1	51.5
SILT+CLAY	%	23.4	98.1	98.4	99.3	98.1	99.2	97.7
SPECIFIC GRAVITY	--	2.68	2.66	2.68	2.66	2.67	2.66	2.66
PERCENT MOISTURE	%	30.3	62.5	61.5	61.7	60.6	60.5	60.8

**TABLE 2A. GENERAL CHEMISTRY PARAMETERS IN SEDIMENT
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA**

Analyte	Unit	Average RL	Willoughby Bank Reference Site	Dredging Unit 5				Dredging Unit 4			Dredging Unit 3		
				SC-01	SC-01 Field Duplicate	SC-02	SC-01/02	SC-03	SC-04	SC-03/04	SC-05	SC-06	SC-05/06
AMMONIA (NH ₃), AS N	MG/KG	12.5	11 B	180 B	190 B	260 B	220 B	240 B	200 B	240 B	290 B	270 B	220 B
CYANIDE, TOTAL	MG/KG	0.618	0.35 U	0.49 U	0.47 U	0.64 U	0.58 U	0.59 U	0.62 U	0.58 U	0.69 U	0.71 U	0.65 U
TOTAL ORGANIC CARBON	%	0.25	0.71	1.5	1.6	2.4	1.8	2.0	2.1	2.0	2.2	2.2	2.3
TOTAL SULFIDE	MG/KG	74	82 B	330 B	360 B	430 B	250 B	480 B	360 B	570 B	660 B	380	290 B

There are no sediment quality guidelines for the general chemistry parameters

NOTES: Bold values represent detected concentrations

RL is reported for non-detected constituents

RL = range of reporting limits

B = detected in the laboratory method blank

J = compound was detected, but below the reporting limit (value is estimated)

U = compound was analyzed, but not detected

**TABLE 2B. GENERAL CHEMISTRY PARAMETERS IN SEDIMENT
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA**

Analyte	Unit	Average RL	Willoughby Bank Reference Site	Dredging Unit 2			Dredging Unit 1		
				SC-07	SC-08	SC-07/08	SC-09	SC-10	SC-09/10
AMMONIA (NH ₃), AS N	MG/KG	12.5	11 B	280 B	280 B	230 B	250 B	390 B	280 B
CYANIDE, TOTAL	MG/KG	0.618	0.35 U	0.67 U	0.31 U	0.64 U	0.66 U	0.62 U	0.62 U
TOTAL ORGANIC CARBON	%	0.25	0.71	2.5	2.2	2.3	2.4	2.5	2.4
TOTAL SULFIDE	MG/KG	74	82 B	630	280	380	310	250	250

There are no sediment quality guidelines for the general chemistry parameters

NOTES: Bold values represent detected concentrations

RL is reported for non-detected constituents

RL = range of reporting limits

B = detected in the laboratory method blank

J = compound was detected, but below the reporting limit (value is estimated)

U = compound was analyzed, but not detected

TABLE 3A. METALS CONCENTRATIONS (MG/KG) IN SEDIMENT
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

ANALYTE	UNITS	Average RL	TEL	PEL	Willoughby Bank Reference Site
ALUMINUM	MG/KG	3.563	--	--	4,200 B
ANTIMONY	MG/KG	0.238	--	--	0.06 J B
ARSENIC	MG/KG	0.123	7.24	41.6	2.2
BARIUM	MG/KG	1.197	--	--	11 B
BERYLLIUM	MG/KG	0.120	--	--	0.2
CADMIUM	MG/KG	0.120	0.676	4.21	0.1
CALCIUM	MG/KG	11.969	--	--	9,500 B
CHROMIUM	MG/KG	0.238	52.3	160.4	10 B
COBALT	MG/KG	0.059	--	--	3 B
COPPER	MG/KG	0.238	18.7	108.2	4.4 B
IRON	MG/KG	5.944	--	--	8,400 B
LEAD	MG/KG	0.120	30.24	112.18	6.6 B
MAGNESIUM	MG/KG	11.969	--	--	2,800 B
MANGANESE	MG/KG	0.594	--	--	99 B
MERCURY	MG/KG	0.039	0.130	0.696	0.0
NICKEL	MG/KG	0.120	15.9	42.8	5.6 B
POTASSIUM	MG/KG	11.969	--	--	1,000
SELENIUM	MG/KG	0.594	--	--	0.27 J
SILVER	MG/KG	0.120	0.730	1.77	0.025 J
SODIUM	MG/KG	11.969	--	--	3,600 B
THALLIUM	MG/KG	0.120	--	--	0.068 J
VANADIUM	MG/KG	0.123	--	--	10.0
ZINC	MG/KG	0.594	124	271	38 B

Dredging Unit 5			
SC-01	SC-01 Field Duplicate	SC-02	SC-01/02
15,000	16,000	21,000	20,000
0.18 J	0.19	0.23 J	0.22
4.4	4.6	5.9	5.3
51 B	55 B	68 B	63 B
0.84	0.88	1.2	1.1
0.34	0.35	0.44	0.42
1,100	1,100	2,800	1,300
24 B	25 B	32 B	30 B
7.8 B	8.2 B	11 B	9.8 B
20 B	22 B	27 B	25 B
24,000	25,000	32,000	29,000
23 B	25 B	31 B	29 B
3,000	3,100	4,500	4,000
350 B	370 B	480 B	420 B
0.07	0.08	0.1	0.092
13 B	13 B	17 B	16 B
1,800	1,700	2,400	2,200
0.73	0.78	0.98	0.86
0.15 B	0.19 B	0.18 B	0.16 B
2,600	2,600	4,600	3,800
0.2	0.22	0.28	0.27
33	36	47	43
120 B	140 B	160 B	150 B

Dredging Unit 4		
SC-03	SC-04	SC-03/04
23,000	22,000	22,000
0.23	0.23	0.23
5.7	5.4	5.6
70 B	74 B	71 B
1.2	1.1	1.2
0.41	0.37	0.38
1,300	1,500	1,200
31 B	31 B	31 B
11 B	11 B	11 B
25 B	23 B	24 B
31,000	30,000	31,000
32 B	30 B	31 B
4,400	4,200	4,300
520 B	560 B	570 B
0.1	0.097	0.11
18 B	18 B	18 B
2,300	2,400	2,300
0.92	0.9	0.93
0.18 B	0.17 B	0.18 B
4,300	4,300	4,100
0.28	0.28	0.28
48	46	50
140 B	120 B	120 B

Dredging Unit 3		
SC-05	SC-06	SC-05/06
30,000	28,000	29,000
0.3	0.27	0.29
6.9	6.8	6.5
98 B	92 B	100 B
1.5	1.4	1.6
0.48	0.45	0.51
1,600	1,500	1,600
39 B	37 B	41 B
15 B	14 B	16 B
29 B	28 B	31 B
40,000	39,000	42,000
41 B	39 B	43 B
5,800	5,500	5,700
910 B	910 B	980 B
0.13	0.13	0.13
24 B	23 B	25 B
3,000	2,800	3,000
1.2	1.1	1.2
0.24 B	0.23 B	0.25 B
5,300	5,200	4,900
0.36	0.34	0.37
62	61	58
140 B	130 B	140 B

*Source : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTES: Bold values represent detected concentrations. Shaded concentrations exceed sediment quality guidelines

RL is reported for non-detected constituents

B = compound was detected in the laboratory method blank

TEL = threshold effects level

J = compound was detected, but below the reporting limit (value is estimated)

PEL = probable effects level

TABLE 3B. METALS CONCENTRATIONS (MG/KG) IN SEDIMENT
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

ANALYTE	UNITS	Average RL	TEL	PEL	Willoughby Bank Reference Site	Dredging Unit 2			Dredging Unit 1		
						SC-07	SC-08	SC-07/08	SC-09	SC-10	SC-09/10
ALUMINUM	MG/KG	3.563	--	--	4,200 B	27,000	28,000	27,000	27,000	27,000	25,000
ANTIMONY	MG/KG	0.238	--	--	0.06 J B	0.27	0.28	0.27 J	0.26	0.29	0.26
ARSENIC	MG/KG	0.123	7.24	41.6	2.2	6.7	6.2	6.7	6.4	6.8	6.3
BARIUM	MG/KG	1.197	--	--	11 B	90 B	99 B	92 B	95 B	98 B	89 B
BERYLLIUM	MG/KG	0.120	--	--	0.2	1.4	1.5	1.5	1.4	1.4	1.4
CADMIUM	MG/KG	0.120	0.676	4.21	0.1	0.45	0.47	0.46	0.44	0.49	0.45
CALCIUM	MG/KG	11.969	--	--	9,500 B	1,600	1,700	1,600	1,600	1,800	1,700
CHROMIUM	MG/KG	0.238	52.3	160.4	10 B	37 B	37 B	38 B	36 B	37 B	35 B
COBALT	MG/KG	0.059	--	--	3 B	14 B	14 B	15 B	14 B	14 B	14 B
COPPER	MG/KG	0.238	18.7	108.2	4.4 B	28 B	28 B	29 B	27 B	28 B	27 B
IRON	MG/KG	5.944	--	--	8,400 B	38,000	38,000	39,000	38,000	38,000	37,000
LEAD	MG/KG	0.120	30.24	112.18	6.6 B	39 B	40 B	39 B	38 B	41 B	39 B
MAGNESIUM	MG/KG	11.969	--	--	2,800 B	5,400	5,400	5,500	5,300	5,400	5,100
MANGANESE	MG/KG	0.594	--	--	99 B	980	1,100	1,100	1,100	1,200	1,100
MERCURY	MG/KG	0.039	0.130	0.696	0.028	0.14	0.13	0.14	0.13	0.14	0.14
NICKEL	MG/KG	0.120	15.9	42.8	5.6 B	23 B	23 B	23 B	22 B	23 B	22 B
POTASSIUM	MG/KG	11.969	--	--	1,000	2,700	2,700	2,800	2,700	2,600	2,500
SELENIUM	MG/KG	0.594	--	--	0.27 J	1.1	1.1	1.1	1.1	1.1	1.1
SILVER	MG/KG	0.120	0.730	1.77	0.025 J	0.23 B	0.24 B	0.24 B	0.22 B	0.25 B	0.24 B
SODIUM	MG/KG	11.969	--	--	3,600 B	4,900	4,500	4,800	4,700	4,100	4,400
THALLIUM	MG/KG	0.120	--	--	0.068 J	0.33	0.34	0.34	0.33	0.34	0.32
VANADIUM	MG/KG	0.123	--	--	10.0	57	55	58	56	60	55
ZINC	MG/KG	0.594	124	271	38 B	120 B	130 B	130 B	120 B	120 B	120 B

*Source : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTES: Bold values represent detected concentrations. Shaded concentrations exceed sediment quality guidelines

RL is reported for non-detected constituents

B = compound was detected in the laboratory method blank

TEL = threshold effects level

J = compound was detected, but below the reporting limit (value is estimated)

PEL = probable effects level

**TABLE 4A. PAH CONCENTRATIONS (UG/KG) IN SEDIMENT
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA**

					Willoughby Bank Reference Site
ANALYTE	UNITS	Average RL	TEL ^a	PEL ^a	
LOW MOLECULAR WEIGHT PAHs					
1-METHYLNAPHTHALENE*	UG/KG	62.9	--	--	1.2 J
2-METHYLNAPHTHALENE*	UG/KG	62.9	20.2	201	1.4 J
ACENAPHTHENE*	UG/KG	62.9	6.71	88.9	1.8 J
ACENAPHTHYLENE	UG/KG	62.9	5.87	128	9.4 U
ANTHRACENE*	UG/KG	62.9	46.9	245	4.3 J
FLUORENE*	UG/KG	62.9	21.2	144	2.6 J
NAPHTHALENE*	UG/KG	62.9	34.6	391	1.9 J
PHENANTHRENE*	UG/KG	62.9	86.7	544	13
TOTAL LPAHs (ND=RL)	UG/KG	--	--	--	30.9
HIGH MOLECULAR WEIGHT PAHs					
BENZO(A)ANTHRACENE*	UG/KG	62.9	74.8	693	11
BENZO(A)PYRENE*	UG/KG	62.9	88.8	763	11
BENZO(B)FLUORANTHENE	UG/KG	62.9	--	--	11
BENZO(GH)PERYLENE	UG/KG	62.9	--	--	6.5 J
BENZO(K)FLUORANTHENE	UG/KG	62.9	--	--	7.3 J
CHRYSENE*	UG/KG	62.9	108	846	12
DIBENZO(A,H)ANTHRACENE*	UG/KG	62.9	6.22	135	9.4 U
FLUORANTHENE*	UG/KG	62.9	113	1,494	22
INDENO(1,2,3-CD)PYRENE	UG/KG	62.9	--	--	6 J
PYRENE*	UG/KG	62.9	153	1,398	21
TOTAL HPAHs (ND=RL)	UG/KG	--	--	--	86
TOTAL PAHs					
TOTAL PAHs (ND=RL)	UG/KG	--	1,684	16,770	153

* PAHs used for Total LPAH and Total HPAH summation, as per Table 5-5 of the SERIM (USEPA/USACE 2008)

(a) Source: MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTES: Bold values represent detected concentrations. Shaded concentrations exceed sediment quality guidelines.

RL is reported for non-detected constituents

LPAH = low molecular weight PAHs

HPAH = high molecular weight PAHs

TEL = threshold effects level

PEL = probable effects level

J = compound was detected, but below the reporting limit (value is estimated)

U = compound was analyzed, but not detected

Dredging Unit 5			
SC-01	SC-01 Field Duplicate	SC-02	SC-01/02
44	50	43 U	29 J
85	110	5.1 J	64 J
360	320	6.1 J	210
8.8 J	5.8 J	9.5 J	77 U
53	31	19 J	46 J
240	210	8.9 J	180
39	34	43 U	77 U
500	330	37 J	380
1,321	1,085	162	986
47	31	50	64 J
33	23	44	51 J
49	32	60	62 J
29	18	37 J	37 J
21	15	24 J	37 J
58	41	64	78
8 J	5.4 J	43 U	77 U
180	98	99	200
24	15	29 J	33 J
140	79	98	150
466	277	398	620
1,919	1,448	720	1,852

Dredging Unit 4		
SC-03	SC-04	SC-03/04
39 U	41 U	79 U
39 U	4.4 J	79 U
39 U	41 U	79 U
39 U	7.9 J	79 U
9.1 J	9.9 J	14 J
39 U	41 U	79 U
39 U	41 U	79 U
21 J	25 J	27 J
225	203	436
33 J	35 J	46 J
35 J	39 J	39 J
41	45	55 J
25 J	30 J	25 J
20 J	29 J	20 J
35 J	50	42 J
39 U	41 U	79 U
56	69	71 J
21 J	23 J	23 J
64	78	67 J
262	312	344
633	650	982

Dredging Unit 3		
SC-05	SC-06	SC-05/06
92 U	46 U	90 U
92 U	4.2 J	90 U
92 U	46 U	90 U
92 U	8.1 J	90 U
14 J	11 J	11 J
92 U	46 U	90 U
92 U	46 U	90 U
33 J	27 J	25 J
507	226	486
47 J	35 J	36 J
50 J	37 J	47 J
49 J	58	58 J
33 J	31 J	35 J
50 J	17 J	21 J
63 J	46	46 J
92 U	46 U	90 U
85 J	64	65 J
30 J	24 J	25 J
96	71	64 J
433	299	348
1,194	663	1,063

**TABLE 4B. PAH CONCENTRATIONS (UG/KG) IN SEDIMENT
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA**

					Willoughby Bank Reference Site
ANALYTE	UNITS	Average RL	TEL ^a	PEL ^a	
LOW MOLECULAR WEIGHT PAHs (LPAHs)					
1-METHYLNAPHTHALENE*	UG/KG	62.9	--	--	1.2 J
2-METHYLNAPHTHALENE*	UG/KG	62.9	20.2	201	1.4 J
ACENAPHTHENE*	UG/KG	62.9	6.71	88.9	1.8 J
ACENAPHTHYLENE	UG/KG	62.9	5.87	128	9.4 U
ANTHRACENE*	UG/KG	62.9	46.9	245	4.3 J
FLUORENE*	UG/KG	62.9	21.2	144	2.6 J
NAPHTHALENE*	UG/KG	62.9	34.6	391	1.9 J
PHENANTHRENE*	UG/KG	62.9	86.7	544	13
TOTAL LPAHs (ND=RL)	UG/KG	--	--	--	30.9
HIGH MOLECULAR WEIGHT PAHs (HPAHs)					
BENZO(A)ANTHRACENE*	UG/KG	62.9	74.8	693	11
BENZO(A)PYRENE*	UG/KG	62.9	88.8	763	11
BENZO(B)FLUORANTHENE	UG/KG	62.9	--	--	11
BENZO(GHI)PERYLENE	UG/KG	62.9	--	--	6.5 J
BENZO(K)FLUORANTHENE	UG/KG	62.9	--	--	7.3 J
CHRYSENE*	UG/KG	62.9	108	846	12
DIBENZO(A,H)ANTHRACENE*	UG/KG	62.9	6.22	135	9.4 U
FLUORANTHENE*	UG/KG	62.9	113	1,494	22
INDENO(1,2,3-CD)PYRENE	UG/KG	62.9	--	--	6 J
PYRENE*	UG/KG	62.9	153	1,398	21
TOTAL HPAHs (ND=RL)	UG/KG	--	--	--	86
TOTAL PAHs					
TOTAL PAHs (ND=RL)	UG/KG	--	1,684	16,770	153

Dredging Unit 2		
SC-07	SC-08	SC-07/08
88 U	42 U	89 U
88 U	42 U	89 U
88 U	42 U	89 U
88 U	42 U	89 U
13 J	42 U	12 J
88 U	42 U	89 U
88 U	42 U	89 U
31 J	9 J	21 J
484	261	478
42 J	18 J	34 J
39 J	20 J	38 J
57 J	29 J	42 J
34 J	42 U	31 J
22 J	10 J	24 J
43 J	22 J	35 J
88 U	42 U	89 U
65 J	23 J	50 J
24 J	42 U	23 J
78 J	30 J	51 J
355	155	297
1,064	581	984

Dredging Unit 1		
SC-09	SC-10	SC-09/10
86 U	85 U	84 U
86 U	85 U	84 U
86 U	85 U	84 U
86 U	85 U	84 U
11 J	13 J	10 J
86 U	85 U	84 U
86 U	85 U	84 U
23 J	23 J	21 J
464	461	451
34 J	37 J	30 J
37 J	43 J	35 J
46 J	51 J	50 J
27 J	31 J	27 J
19 J	19 J	84 U
44 J	46 J	39 J
86 U	85 U	84 U
60 J	62 J	52 J
22 J	23 J	24 J
57 J	60 J	52 J
318	333	292
982	1,003	1,012

* PAHs used for Total LPAH and Total HPAH summation, as per Table 5-5 of the SERIM (USEPA/USACE 2008)

(a) Source: MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTES: Bold values represent detected concentrations. Shaded concentrations exceed sediment quality guidelines.

RL is reported for non-detected constituents

TEL = threshold effects level

J = compound was detected, but below the reporting limit (value is estimated)

PEL = probable effects level

U = compound was analyzed, but not detected

TABLE 5A. PCB CONGENER CONCENTRATIONS (UG/KG) IN SEDIMENT

SKIFFES CREEK, BACK RIVER, VIRGINIA

ANALYTE	UNITS	Average RL	TEL**	PEL**	Willoughby Bank Reference Site
PCB 8 (BZ)*	UG/KG	1.24	--	--	0.12 J P
PCB 18 (BZ)*	UG/KG	1.24	--	--	0.36 J
PCB 28 (BZ)*	UG/KG	1.24	--	--	0.7 U
PCB 44 (BZ)*	UG/KG	1.24	--	--	0.7 U
PCB 49 (BZ)	UG/KG	1.24	--	--	0.7 U
PCB 52 (BZ)*	UG/KG	1.24	--	--	0.7 U
PCB 66 (BZ)*	UG/KG	1.24	--	--	0.7 U
PCB 77 (BZ)	UG/KG	1.24	--	--	0.7 U
PCB 87 (BZ)	UG/KG	1.24	--	--	0.7 U
PCB 101 (BZ)*	UG/KG	1.24	--	--	0.7 U
PCB 105 (BZ)*	UG/KG	1.24	--	--	0.7 U
PCB 118 (BZ)*	UG/KG	1.24	--	--	0.7 U
PCB 126 (BZ)	UG/KG	1.24	--	--	0.7 U
PCB 128 (BZ)*	UG/KG	1.24	--	--	0.7 U
PCB 138 (BZ)*	UG/KG	1.24	--	--	0.7 U
PCB 153 (BZ)*	UG/KG	1.24	--	--	0.7 U
PCB 156 (BZ)	UG/KG	1.24	--	--	0.7 U
PCB 169 (BZ)	UG/KG	1.24	--	--	0.7 U
PCB 170 (BZ)*	UG/KG	1.24	--	--	0.7 U
PCB 180 (BZ)*	UG/KG	1.24	--	--	0.7 U
PCB 183 (BZ)	UG/KG	1.24	--	--	0.7 U
PCB 184 (BZ)	UG/KG	1.24	--	--	0.7 U
PCB 187 (BZ)*	UG/KG	1.24	--	--	0.7 U
PCB 195 (BZ)*	UG/KG	1.24	--	--	0.7 U
PCB 206 (BZ)*	UG/KG	1.24	--	--	0.7 U
PCB 209 (BZ)*	UG/KG	1.24	--	--	0.7 U
TOTAL PCBs (ND=RL)	UG/KG	--	21.6	189	23.4

Dredging Unit 5			
SC-01	SC-01 Field Duplicate	SC-02	SC-01/02
0.39 J P	0.2 J P	0.46 J P	0.56 J P
0.12 J P	0.95 U	0.64 J	0.24 J P
0.38 J P	0.26 J P	0.34 J P	1.1 U
0.25 J P	0.2 J P	0.17 J	1.1 U
0.34 J P	0.38 J	0.3 J P	0.4 J
0.29 J B	0.95 U	1.3 U	1.1 U
0.37 J P	0.32 J P	0.39 J P	0.31 J P
2.5 B	2.2 B	2.5 B	1.3 P B
0.07 J P	0.069 J P	0.095 J P	1.1 U
0.68 J P	0.56 J P	0.91 J	0.89 J
0.98 U	0.95 U	1.3 U	1.1 U
0.36 J	0.21 J	0.34 J	1.1 U
0.98 U	0.95 U	1.3 U	1.1 U
0.42 J	0.19 J P	0.32 J P	0.24 J P
0.45 J P	0.32 J P	0.99 J	0.46 J P
1.7	1.4	1.7	1.6
0.98 U	0.95 U	1.3 U	1.1 U
0.98 U	0.95 U	1.3 U	1.1 U
0.71 J	0.54 J	0.81 J	0.75 J
0.74 J	0.58 J	0.86 J	0.77 J
0.2 J P	0.17 J P	0.32 J	0.26 J
0.98 U	0.95 U	1.3 U	0.12 J P
0.41 J P	0.33 J P	0.53 J P	0.37 J P
0.98 U	0.95 U	1.3 U	1.1 U
0.14 J	0.14 J	0.12 J	0.1 J
0.63 J	1.2	0.87 J	0.61 J
20.0	20.5	26.7	27.0

Dredging Unit 4		
SC-03	SC-04	SC-03/04
0.32 J P	0.99 J P	0.61 J P
0.26 J	0.29 J P	0.26 J P
0.35 J P	0.3 J P	0.31 J P
0.14 J	0.15 J	0.14 J
0.12 J P	1.2 U	0.23 J
1.2 U	1.2 U	1.2 U
0.37 J P	1.2 U	0.32 J P
1.2 U	1.8 B	1.7 B
1.2 U	0.077 J P	1.2 U
0.84 J	0.5 J P	0.65 J
1.2 U	1.2 U	1.2 U
0.29 J	1.2 U	0.25 J
1.2 U	1.2 U	1.2 U
0.4 J	0.21 J P	0.17 J P
0.5 J P	0.5 J P	0.38 J P
1.4	1.2	1.1 J
1.2 U	1.2 U	1.2 U
1.2 U	1.2 U	1.2 U
0.69 J	0.57 J	0.55 J
0.7 J	0.56 J	0.52 J
0.27 J	0.24 J	0.25 J
1.2 U	1.2 U	1.2 U
0.37 J P	0.33 J P	0.26 J P
1.2 U	1.2 U	1.2 U
0.11 J	0.083 J	0.11 J
0.76 J	0.69 J	0.79 J
22.2	24.7	20.0

Dredging Unit 3		
SC-05	SC-06	SC-05/06
0.47 J P	0.65 J P	0.97 J P
1.4 U	0.15 J P	0.67 J P
0.53 J P	0.37 J P	0.29 J P
0.25 J	0.14 J P	1.3 U
0.33 J	0.34 J	0.22 J
1.4 U	1.4 U	1.3 U
0.47 J P	0.31 J P	0.32 J P
1.8 B	1.6 B	1.3 B
0.12 J P	1.4 U	1.3 U
0.81 J	0.71 J	0.68 J
1.4 U	1.4 U	1.3 U
0.46 J	0.33 J	1.3 U
1.4 U	1.4 U	1.3 U
0.19 J P	0.16 J P	0.14 J P
0.51 J	0.4 J P	0.37 J P
1.3 J	1.1 J	0.94 J
1.4 U	1.4 U	1.3 U
1.4 U	1.4 U	1.3 U
0.59 J	0.45 J	0.49 J
0.56 J	0.48 J	0.4 J
0.17 J P	0.15 J P	1.3 U
1.4 U	1.4 U	1.3 U
0.29 J P	0.28 J P	0.21 J P
1.4 U	1.4 U	1.3 U
0.15 J P	0.12 J	0.69 J
1.2 J	0.98 J	0.88 J
26.8	21.7	27.1

* PCB congeners used for Total PCB summation, as per Table 5-6 of the SERIM (USEPA/USACE 2008)

**Source : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTES: Bold values represent detected concentrations. Shaded concentrations exceed sediment quality guidelines.

RL is reported for non-detected constituents.

B = compound was detected in the laboratory method blank

J = compound was detected, but below the reporting limit (value is estimated)

P = the percent difference between the original and confirmation analysis is greater than 40%

U = compound was analyzed, but not detected

TABLE 5B. PCB CONGENER CONCENTRATIONS (UG/KG) IN SEDIMENT
SKIFFES CREEK, BACK RIVER, VIRGINIA

ANALYTE	UNITS	Average RL	TEL**	PEL**	Willoughby Bank Reference Site	Dredging Unit 2			Dredging Unit 1		
						SC-07	SC-08	SC-07/08	SC-09	SC-10	SC-09/10
PCB 8 (BZ)*	UG/KG	1.24	--	--	0.12 J P	0.21 J P	0.55 J P	0.6 J P	0.34 J P	0.29 J P	0.28 J P
PCB 18 (BZ)*	UG/KG	1.24	--	--	0.36 J	1.3 U	1.3 U	0.25 J P	1.3 U	0.42 J	0.74 J
PCB 28 (BZ)*	UG/KG	1.24	--	--	0.7 U	0.61 J P	0.52 J P	0.25 J P	0.54 J P	0.61 J P	0.41 J P
PCB 44 (BZ)*	UG/KG	1.24	--	--	0.7 U	0.23 J	0.23 J	1.3 U	0.19 J P	0.21 J P	0.14 J
PCB 49 (BZ)	UG/KG	1.24	--	--	0.7 U	0.21 J P	0.22 J P	1.3 U	0.46 J	0.49 J	0.16 J P
PCB 52 (BZ)*	UG/KG	1.24	--	--	0.7 U	1.3 U	1.3 U	1.3 U	0.25 J P B	0.53 J B	1.3 U
PCB 66 (BZ)*	UG/KG	1.24	--	--	0.7 U	0.48 J P	0.38 J P	0.3 J P	0.57 J P	0.56 J P	1.3 U
PCB 77 (BZ)	UG/KG	1.24	--	--	0.7 U	1.9 B	1.6 B	1.4 B	2.1 B	2.4 B	1.7 B
PCB 87 (BZ)	UG/KG	1.24	--	--	0.7 U	0.11 J P	0.09 J P	1.3 U	0.11 J P	0.084 J P	1.3 U
PCB 101 (BZ)*	UG/KG	1.24	--	--	0.7 U	0.85 J	0.47 J P	0.63 J	1.1 J	1.1 J	0.68 J
PCB 105 (BZ)*	UG/KG	1.24	--	--	0.7 U	1.3 U	1.3 U	1.3 U	0.25 J	1.3 U	1.3 U
PCB 118 (BZ)*	UG/KG	1.24	--	--	0.7 U	1.3 U	1.3 U	0.3 J	0.52 J	1.3 U	0.36 J
PCB 126 (BZ)	UG/KG	1.24	--	--	0.7 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
PCB 128 (BZ)*	UG/KG	1.24	--	--	0.7 U	0.21 J P	0.17 J P	0.15 J P	0.23 J P	0.21 J P	0.12 J P
PCB 138 (BZ)*	UG/KG	1.24	--	--	0.7 U	0.49 J P	0.42 J P	0.35 J P	0.58 J P	0.43 J P	0.35 J P
PCB 153 (BZ)*	UG/KG	1.24	--	--	0.7 U	1.3	1.1 J	1 J	1.6	1.4	1 J
PCB 156 (BZ)	UG/KG	1.24	--	--	0.7 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
PCB 169 (BZ)	UG/KG	1.24	--	--	0.7 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
PCB 170 (BZ)*	UG/KG	1.24	--	--	0.7 U	0.55 J	0.45 J	0.32 J P	0.53 J P	0.6 J	0.41 J
PCB 180 (BZ)*	UG/KG	1.24	--	--	0.7 U	0.55 J	0.47 J	0.41 J	0.65 J	0.58 J	0.4 J
PCB 183 (BZ)	UG/KG	1.24	--	--	0.7 U	0.28 J	0.15 J P	0.14 J P	0.21 J P	0.25 J	0.15 J P
PCB 184 (BZ)	UG/KG	1.24	--	--	0.7 U	0.37 J	0.17 J P	1.3 U	1.3 U	0.22 J P	1.3 U
PCB 187 (BZ)*	UG/KG	1.24	--	--	0.7 U	0.27 J P	0.26 J P	0.21 J P	0.36 J P	0.28 J P	0.21 J P
PCB 195 (BZ)*	UG/KG	1.24	--	--	0.7 U	1.3 U	1.3 U	1.3 U	0.24 J	1.3 U	1.3 U
PCB 206 (BZ)*	UG/KG	1.24	--	--	0.7 U	0.18 J	0.12 J	0.15 J	0.18 J	0.18 J	0.12 J
PCB 209 (BZ)*	UG/KG	1.24	--	--	0.7 U	1.2 J	1 J	0.95 J	1.4	1.3	0.9 J
TOTAL PCBs (ND=RL)	UG/KG	--	21.6	189	23.4	27.3	25.3	22.1	21.7	25.2	22.6

* PCB congeners used for Total PCB summation, as per Table 5-6 of the SERIM (USEPA/USACE 2008)

**Source : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTES: Bold values represent detected concentrations. Shaded concentrations exceed sediment quality guidelines.

RL is reported for non-detected constituents.

B = compound was detected in the laboratory method blank

J = compound was detected, but below the reporting limit (value is estimated)

P = the percent difference between the original and confirmation analysis is greater than 40%

U = compound was analyzed, but not detected

TABLE 6A. DIOXIN AND FURAN CONGENERS CONCENTRATIONS (NG/KG) IN SEDIMENT

SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

ANALYTE	UNITS	Average RL	TEF*	Willoughby Bank Reference Site	Dredging Unit 5				Dredging Unit 4			Dredging Unit 3		
					SC-01	SC-01 Field Duplicate	SC-02	SC-01/02	SC-03	SC-04	SC-03/04	SC-05	SC-06	SC-05/06
2,3,7,8-TCDD	NG/KG	1.19	1	0.98 U	0.14 Q J	0.26 Q J	1.2 U	0.43 Q J	0.41 Q J	0.5 Q J	0.12 Q J	0.55 Q J	0.61 Q J	0.059 Q J
1,2,3,7,8-PECDD	NG/KG	5.99	1	0.25 J	1.2 Q J	1.3 Q J	5.9 U	1.8 Q J	1.5 J	1.7 J	0.27 Q J	1.3 Q J	2.2 Q J	0.45 Q J
1,2,3,4,7,8-HXCDD	NG/KG	5.99	0.1	0.67 J	2 Q J	2.4 Q J	5.9 U	3.7 J	3.9 J	2.5 Q J	0.49 J	4.3 J	4.1 J	0.73 Q J
1,2,3,6,7,8-HXCDD	NG/KG	5.99	0.1	0.9 J	5.2	5.5	7.6	7.7	7.2 Q	5.3 J	0.68 Q J	8.1	8.5	1.6 Q J
1,2,3,7,8,9-HXCDD	NG/KG	5.99	0.1	2.2 B J	8.8	9.4 Q	13	12	14	11	1.2 Q J	14 Q	16	3.1 Q J
1,2,3,4,6,7,8-HPCDD	NG/KG	5.99	0.01	26 B	150 B	170 B	250 B	230 B	240 B	200 B	26 B	270 B	290 B	63 B
OCDD	NG/KG	11.9	0.0003	390 B	3800 B	3800 B	6500 B	5800 B	6600 B	5400 B	730 B	7000 B	6800 B	1600 B
2,3,7,8-TCDF	NG/KG	1.19	0.1	0.16 Q J	1.8	2 Q	2.7	2.7	3.2	2.7	0.32 Q J	4.7 Q	4.1	1.1 Q J
1,2,3,7,8-PECDF	NG/KG	5.99	0.03	0.13 Q J	0.76 J	0.48 Q J	5.9 U	1 Q J	0.71 Q J	0.78 Q J	5.6 U	1.5 J	1.5 Q J	0.23 J
2,3,4,7,8-PECDF	NG/KG	5.99	0.3	4.9 U	0.99 J	1.2 J	5.9 U	1.4 Q J	1.4 Q J	1.4 Q J	0.22 J	1.9 Q J	2 Q J	0.58 Q J
1,2,3,4,7,8-HXCDF	NG/KG	5.99	0.1	0.26 Q J	1.6 J	2.1 Q J	5.9 U	1.4 J	2.3 Q J	2 Q J	0.24 J	1.9 Q J	3.1 J	0.48 Q J
1,2,3,6,7,8-HXCDF	NG/KG	5.99	0.1	0.19 Q J	1.5 Q J	2.1 Q J	5.9 U	2 J	2 J	1.9 Q J	0.22 Q J	2.5 Q J	2.5 Q J	0.38 Q J
2,3,4,6,7,8-HXCDF	NG/KG	5.99	0.1	0.16 Q J	0.64 J	0.8 J	5.9 U	0.91 J	1 J	1.1 J	0.079 Q J	1.4 Q J	1.5 Q J	0.33 Q J
1,2,3,7,8,9-HXCDF	NG/KG	5.99	0.1	4.9 U	5 U	0.17 J	5.9 U	0.2 Q J	0.057 Q J	0.23 J	5.6 U	0.1 Q J	6.4 U	0.056 Q J
1,2,3,4,6,7,8-HPCDF	NG/KG	5.99	0.01	0.88 Q B J	9.3 B	9.9 B	13 B	16 B	15 B	11 Q B	1.9 B J	17 B	19 B	3.7 Q B J
1,2,3,4,7,8,9-HPCDF	NG/KG	5.99	0.01	0.066 Q B J	0.79 J	0.78 Q J	5.9 U	1.4 J	0.93 Q J	0.96 J	0.068 Q J	1.2 Q J	1.4 J	0.21 J
OCDF	NG/KG	11.9	0.0003	1.8 B J	15 B	17 B	20 B	24 B	16 B	15 B	2.2 B J	23 B	23 B	4.4 Q B J
DIOXIN TEQ (ND=RL)	NG/KG		--	3.94	5.37	3.95	19.0	7.66	8.44	7.37	1.37	6.26	9.37	1.12

*Source: Van den Berg, M, et al. 2006. The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds.

Toxicological Sciences 93(2):223-241.

There are no sediment quality guidelines for dioxin and furan congeners

NOTES: Bold values represent detected concentrations; RL is reported for non-detected constituents.**TEF** = toxicity equivalency factor**B** = compound was detected in the laboratory method blank**J** = compound was detected, but below the reporting limit (value is estimated)**Q** = compound was detected, but as an estimated maximum concentration**U** = compound was analyzed, but not detected

TABLE 6B. DIOXIN AND FURAN CONGENERS CONCENTRATIONS (NG/KG) IN SEDIMENT

SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

ANALYTE	UNITS	Average RL	TEF*	Willoughby Bank Reference Site	Dredging Unit 2			Dredging Unit 1		
					SC-07	SC-08	SC-07/08	SC-09	SC-10	SC-09/10
2,3,7,8-TCDD	NG/KG	1.19	1	0.98 U	0.37 Q J	0.17 Q J	0.079 Q J	0.079 Q J	0.11 Q J	0.067 Q J
1,2,3,7,8-PECDD	NG/KG	5.99	1	0.25 J	1.7 Q J	0.73 Q J	0.87 Q J	0.39 J	0.059 Q J	0.16 Q J
1,2,3,4,7,8-HXCDD	NG/KG	5.99	0.1	0.67 J	4.3 J	1.6 J	2.6 J	0.45 Q J	0.6 J	0.16 Q J
1,2,3,6,7,8-HXCDD	NG/KG	5.99	0.1	0.9 J	9.9	2.6 Q J	5 J	0.92 J	0.63 J	1.3 Q J
1,2,3,7,8,9-HXCDD	NG/KG	5.99	0.1	2.2 B J	16	4.9 J	8.5	1.6 J	0.7 Q J	2 J
1,2,3,4,6,7,8-HPCDD	NG/KG	5.99	0.01	26 B	280 B	97 B	150 B	41 B	20 B	39 B
OCDD	NG/KG	11.9	0.0003	390 B	6200 B	2200 B	3600 B	970 B	470 B	1000 B
2,3,7,8-TCDF	NG/KG	1.19	0.1	0.16 Q J	30	1.6 Q	2.5	0.44 Q J	0.31 J	0.42 Q J
1,2,3,7,8-PECDF	NG/KG	5.99	0.03	0.13 Q J	1.1 J	0.66 J	0.72 Q J	0.15 Q J	0.16 Q J	0.15 Q J
2,3,4,7,8-PECDF	NG/KG	5.99	0.3	4.9 U	2.4 J	0.6 Q J	1.1 Q J	0.063 Q J	0.2 Q J	0.21 Q J
1,2,3,4,7,8-HXCDF	NG/KG	5.99	0.1	0.26 Q J	3.6 J	0.63 Q J	1.7 Q J	0.42 Q J	0.3 J	0.23 Q J
1,2,3,6,7,8-HXCDF	NG/KG	5.99	0.1	0.19 Q J	2.5 Q J	0.69 Q J	1.3 Q J	0.44 J	0.24 Q J	0.44 J
2,3,4,6,7,8-HXCDF	NG/KG	5.99	0.1	0.16 Q J	1.3 J	0.45 Q J	0.57 Q J	0.071 Q J	0.096 Q J	0.24 J
1,2,3,7,8,9-HXCDF	NG/KG	5.99	0.1	4.9 U	0.23 Q J	6.2 U	0.099 Q J	6.2 U	6.2 U	6.2 U
1,2,3,4,6,7,8-HPCDF	NG/KG	5.99	0.01	0.88 Q B J	18 B	5.1 Q B J	9.7 B	2.2 B J	1.6 Q B J	2.5 Q B J
1,2,3,4,7,8,9-HPCDF	NG/KG	5.99	0.01	0.066 Q B J	1.3 J	0.23 Q J	0.73 J	0.27 Q J	6.2 U	6.2 U
OCDF	NG/KG	11.9	0.0003	1.8 B J	21 B	6.9 B J	13 B	1.8 Q B J	3.6 Q B J	3.9 B J
DIOXIN TEQ (ND=RL)	NG/KG		--	3.94	12.1	2.92	4.55	2.03	1.21	1.64

*Source : Van den Berg, M, et al. 2006. The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds.

Toxicological Sciences 93(2):223-241.

There are no sediment quality guidelines for dioxin and furan congeners

NOTES: Bold values represent detected concentrations; RL is reported for non-detected constituents.

TEF = toxicity equivalency factor

B = compound was detected in the laboratory method blank

J = compound was detected, but below the reporting limit (value is estimated)

Q = compound was detected, but as an estimated maximum concentration

U = compound was analyzed, but not detected

TABLE 7A. CHLORINATED AND ORGANOPHOSPHORUS PESTICIDE CONCENTRATIONS (UG/KG) IN SEDIMENT
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

ANALYTE	UNITS	Average RL	TEL*	PEL*	Willoughby Bank Reference Site	Dredging Unit 5				Dredging Unit 4			Dredging Unit 3		
						SC-01	SC-01 Field Duplicate	SC-02	SC-01/02	SC-03	SC-04	SC-03/04	SC-05	SC-06	SC-05/06
2,4'-DDD	UG/KG	0.513	--	--	0.29 U	0.039 J P	0.22 J	0.079 J P	0.19 J	0.049 J P	0.51 U	0.2 J	0.58 U	0.28 J	0.13 J
2,4'-DDE	UG/KG	0.513	--	--	0.29 U	0.41 U	0.39 U	0.53 U	0.48 U	0.49 U	0.51 U	0.49 U	0.58 U	0.57 U	0.56 U
2,4'-DDT	UG/KG	0.513	--	--	0.29 U	0.079 J	0.39 U	0.53 U	0.48 U	0.49 U	0.51 U	0.49 U	0.58 U	0.57 U	0.56 U
4,4'-DDD	UG/KG	0.513	1.22	7.81	0.079 J B	0.56 P	1.2	0.83	0.56	0.43 J P	0.76	0.7	0.77	0.76	0.69
4,4'-DDE	UG/KG	0.513	2.07	374	0.29 U	0.44	0.41	0.43 J	0.24 J	0.35 J	0.38 J	0.36 J	0.44 J	0.52 J	0.36 J
4,4'-DDT	UG/KG	0.513	1.19	4.77	0.29 U	0.65	0.28 J P	0.41 J P	0.23 J P	0.49	0.37 J P	0.28 J P	0.22 J P	0.62	0.14 J P
Total DDTs (ND-RL)	UG/KG	---	---	---	0.659	1.65	1.89	1.67	1.03	1.27	1.51	1.34	1.43	1.9	1.19
CHLORINATED PESTICIDES															
ALDRIN	UG/KG	0.513	--	--	0.29 U	0.077 J P	0.39 U	0.53 U	0.48 U	0.49 U	0.51 U	0.49 U	0.58 U	0.57 U	0.56 U
ALPHA-BHC	UG/KG	0.513	--	--	0.29 U	0.41 U	0.39 U	0.53 U	0.48 U	0.49 U	0.51 U	0.49 U	0.58 U	0.57 U	0.56 U
BETA-BHC	UG/KG	0.513	--	--	0.29 U	0.41 U	0.39 U	0.53 U	0.48 U	0.49 U	0.51 U	0.49 U	0.58 U	0.57 U	0.56 U
CHLORDANE (TECHNICAL)	UG/KG	5.13	--	--	2.9 U	4.1 U	3.9 U	5.3 U	4.8 U	4.9 U	5.1 U	4.9 U	5.8 U	5.7 U	5.6 U
ALPHA-CHLORDANE	UG/KG	0.513	2.26	4.79	0.29 U	0.41 U	0.39 U	0.53 U	0.48 U	0.49 U	0.51 U	0.49 U	0.58 U	0.57 U	0.56 U
GAMMA-CHLORDANE	UG/KG	0.513	--	--	0.29 U	0.3 J	0.18 J P	0.29 J	0.16 J	0.28 J	0.29 J	0.24 J	0.21 J P	0.24 J P	0.56 U
CHLOROBENSIIDE	UG/KG	0.513	--	--	0.29 U	0.41 U	0.39 U	0.53 U	0.48 U	0.49 U	0.51 U	0.49 U	0.58 U	0.57 U	0.56 U
DACHTAL	UG/KG	0.513	--	--	0.29 U	0.41 U	0.39 U	0.53 U	0.48 U	0.49 U	0.51 U	0.49 U	0.58 U	0.57 U	0.56 U
DELTA-BHC	UG/KG	0.513	--	--	0.29 U	0.38 J P	0.38 J P	0.091 J P	0.48 U	0.078 J P	0.51 U	0.49 U	0.092 J P	0.57 U	0.56 U
DIELDRIN	UG/KG	0.513	0.715	4.3	0.29 U	0.41 U	0.12 J P	0.53 U	0.11 J	0.49 U	0.25 J	0.18 J	0.21 J	0.23 J	0.56 U
ENDOSULFAN I	UG/KG	0.513	--	--	0.29 U	0.41 U	0.39 U	0.53 U	0.48 U	0.49 U	0.51 U	0.49 U	0.58 U	0.57 U	0.56 U
ENDOSULFAN II	UG/KG	0.513	--	--	0.29 U	0.41 U	0.39 U	0.53 U	0.48 U	0.49 U	0.51 U	0.49 U	0.58 U	0.57 U	0.56 U
ENDOSULFAN SULFATE	UG/KG	0.513	--	--	0.29 U	0.16 J B	0.091 J B	0.18 J B	0.48 U	0.14 J P B	0.084 J P B	0.12 J P B	0.066 J P B	0.08 J B	0.56 U
ENDRIN	UG/KG	0.513	--	--	0.29 U	0.14 J P	0.39 U	0.12 J P	0.48 U	0.13 J P	0.15 J P	0.12 J P	0.14 J P	0.18 J P	0.11 J P
ENDRIN ALDEHYDE	UG/KG	0.513	--	--	0.29 U	0.41 U	0.39 U	0.53 U	0.48 U	0.49 U	0.51 U	0.49 U	0.58 U	0.57 U	0.56 U
ENDRIN KETONE	UG/KG	0.513	--	--	0.29 U	0.41 U	0.096 J P	0.53 U	0.48 U	0.49 U	0.093 J P	0.49 U	0.095 J P	0.57 U	0.56 U
GAMMA-BHC	UG/KG	0.513	0.32	0.99	0.29 U	0.41 U	0.084 J	0.53 U	0.48 U	0.49 U	0.51 U	0.49 U	0.58 U	0.57 U	0.56 U
HEPTACHLOR	UG/KG	0.513	--	--	0.29 U	0.41 U	0.39 U	0.53 U	0.48 U	0.49 U	0.51 U	0.49 U	0.58 U	0.57 U	0.56 U
HEPTACHLOR EPOXIDE	UG/KG	0.513	--	--	0.29 U	0.41 U	0.39 U	0.53 U	0.48 U	0.49 U	0.51 U	0.49 U	0.58 U	0.57 U	0.56 U
METHOXYCHLOR	UG/KG	1.03	--	--	0.58 U	1.2	0.79 U	1.1 U	0.96 U	0.91 J P	1 U	0.98 U	1.2 U	1.1 U	1.1 U
MIREX	UG/KG	0.513	--	--	0.29 U	0.41 U	0.39 U	0.53 U	0.48 U	0.49 U	0.51 U	0.49 U	0.58 U	0.57 U	0.56 U
TOXAPHENE	UG/KG	20.5	--	--	12 U	16 U	16 U	21 U	19 U	20 U	20 U	20 U	23 U	23 U	22 U
ORGANOPHOSPHORUS PESTICIDES															
AZINPHOS-METHYL	UG/KG	204	--	--	120 U	160 U	160 U	210 U	190 U	190 U	150 J P B	190 U	230 U	230 U	220 U
DEMETON, TOTAL	UG/KG	406	--	--	230 U	320 U	310 U	420 U	380 U	390 U	400 U	390 U	460 U	450 U	440 U
DEMETON-O	UG/KG	204	--	--	120 U	160 U	160 U	210 U	190 U	190 U	200 U	190 U	230 U	230 U	220 U
DEMETON-S	UG/KG	204	--	--	120 U	160 U	160 U	210 U	190 U	190 U	200 U	190 U	230 U	230 U	220 U
MALATHION	UG/KG	204	--	--	120 U	160 U	160 U	210 U	190 U	190 U	200 U	190 U	230 U	230 U	220 U
METHYL PARATHION	UG/KG	204	--	--	120 U	160 U	160 U	210 U	190 U	190 U	200 U	190 U	230 U	230 U	220 U
PARATHION	UG/KG	204	--	--	120 U	160 U	160 U	210 U	190 U	190 U	200 U	190 U	230 U	230 U	220 U

*Source : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTES: Bold values represent detected once **J** = compound was detected, but below the reporting limit (value is estimated)

TEL = threshold effects level **P** = the percent difference between the original and confirmation analysis is greater than 40%

PEL = probable effects level **U** = compound was analyzed, but not detected

TABLE 7B. CHLORINATED AND ORGANOPHOSPHORUS PESTICIDE CONCENTRATIONS (UG/KG) IN SEDIMENT

SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

ANALYTE	UNITS	Average RL	TEL*	PEL*	Willoughby Bank Reference Site	Dredging Unit 2			Dredging Unit 1		
						SC-07	SC-08	SC-07/08	SC-09	SC-10	SC-09/10
2,4'-DDD	UG/KG	0.513	--	--	0.29 U	0.27 J	0.061 J P	0.21 J	0.26 J	0.058 J P	0.19 J
2,4'-DDE	UG/KG	0.513	--	--	0.29 U	0.55 U	0.52 U	0.55 U	0.53 U	0.53 U	0.52 U
2,4'-DDT	UG/KG	0.513	--	--	0.29 U	0.55 U	0.52 U	0.55 U	0.53 U	0.53 U	0.52 U
4,4'-DDD	UG/KG	0.513	1.22	7.81	0.079 J B	0.77 B	0.76 B	0.62 B	0.85 B	0.84 B	0.59 B
4,4'-DDE	UG/KG	0.513	2.07	374	0.29 U	0.51 J	0.38 J	0.36 J	0.41 J	0.48 J	0.36 J
4,4'-DDT	UG/KG	0.513	1.19	4.77	0.29 U	0.24 J P B	0.49 J B	0.25 J P B	0.53 B	0.59 B	0.52 U
Total DDTs ND=RL	UG/KG	---	---	---	0.659	1.52	1.63	1.23	1.79	1.91	1.47
CHLORINATED PESTICIDES											
ALDRIN	UG/KG	0.513	--	--	0.29 U	0.55 U	0.52 U	0.55 U	0.53 U	0.53 U	0.52 U
ALPHA-BHC	UG/KG	0.513	--	--	0.29 U	0.55 U	0.52 U	0.55 U	0.53 U	0.53 U	0.52 U
BETA-BHC	UG/KG	0.513	--	--	0.29 U	0.55 U	0.52 U	0.55 U	0.53 U	0.53 U	0.52 U
CHLORDANE (TECHNICAL)	UG/KG	5.13	--	--	2.9 U	5.5 U	5.2 U	5.5 U	5.3 U	5.3 U	5.2 U
ALPHA-CHLORDANE	UG/KG	0.513	2.26	4.79	0.29 U	0.55 U	0.52 U	0.55 U	0.53 U	0.53 U	0.52 U
GAMMA-CHLORDANE	UG/KG	0.513	--	--	0.29 U	0.24 J P	0.52 U	0.55 U	0.53 U	0.22 J P	0.17 J P
CHLOROBENSIDE	UG/KG	0.513	--	--	0.29 U	0.55 U	0.52 U	0.55 U	0.53 U	0.53 U	0.52 U
DACTAL	UG/KG	0.513	--	--	0.29 U	0.55 U	0.52 U	0.55 U	0.53 U	0.53 U	0.52 U
DELTA-BHC	UG/KG	0.513	--	--	0.29 U	0.55 U	0.52 U	0.55 U	0.084 J P	0.53 U	0.52 U
DIELDRIN	UG/KG	0.513	0.715	4.3	0.29 U	0.23 J	0.52 U	0.14 J	0.19 J	0.12 J	0.17 J
ENDOSULFAN I	UG/KG	0.513	--	--	0.29 U	0.55 U	0.52 U	0.55 U	0.53 U	0.53 U	0.52 U
ENDOSULFAN II	UG/KG	0.513	--	--	0.29 U	0.55 U	0.52 U	0.55 U	0.53 U	0.53 U	0.52 U
ENDOSULFAN SULFATE	UG/KG	0.513	--	--	0.29 U	0.55 U	0.52 U	0.058 J P B	0.14 J B	0.53 U	0.058 J B
ENDRIN	UG/KG	0.513	--	--	0.29 U	0.16 J P	0.13 J P	0.11 J P	0.12 J P	0.16 J P	0.12 J P
ENDRIN ALDEHYDE	UG/KG	0.513	--	--	0.29 U	0.55 U	0.52 U	0.55 U	0.53 U	0.53 U	0.52 U
ENDRIN KETONE	UG/KG	0.513	--	--	0.29 U	0.55 U	0.52 U	0.55 U	0.53 U	0.086 J P	0.52 U
GAMMA-BHC	UG/KG	0.513	0.32	0.99	0.29 U	0.55 U	0.52 U	0.55 U	0.53 U	0.53 U	0.52 U
HEPTACHLOR	UG/KG	0.513	--	--	0.29 U	0.55 U	0.52 U	0.55 U	0.53 U	0.53 U	0.52 U
HEPTACHLOR EPOXIDE	UG/KG	0.513	--	--	0.29 U	0.55 U	0.52 U	0.55 U	0.53 U	0.53 U	0.52 U
METHOXYCHLOR	UG/KG	1.03	--	--	0.58 U	0.4 J P	1 U	1.1 U	1.1 U	1.1 U	1 U
MIREX	UG/KG	0.513	--	--	0.29 U	0.55 U	0.52 U	0.55 U	0.53 U	0.12 J	0.077 J P
TOXAPHENE	UG/KG	20.5	--	--	12 U	22 U	21 U	22 U	21 U	21 U	21 U
ORGANOPHOSPHORUS PESTICIDES											
AZINPHOS-METHYL	UG/KG	204	--	--	120 U	220 U	210 U	220 U	210 U	210 U	210 U
DEMETON, TOTAL	UG/KG	406	--	--	230 U	440 U	420 U	430 U	420 U	420 U	410 U
DEMETON-O	UG/KG	204	--	--	120 U	220 U	210 U	220 U	210 U	210 U	210 U
DEMETON-S	UG/KG	204	--	--	120 U	220 U	210 U	220 U	210 U	210 U	210 U
MALATHION	UG/KG	204	--	--	120 U	220 U	210 U	220 U	210 U	210 U	210 U
METHYL PARATHION	UG/KG	204	--	--	120 U	220 U	210 U	220 U	210 U	210 U	210 U
PARATHION	UG/KG	204	--	--	120 U	220 U	210 U	220 U	210 U	210 U	210 U

*Source : MacDonald et al. 1996. Ecotoxicology 5: 253-278.

NOTES: Bold values represent detected concn; J = compound was detected, but below the reporting limit (value is estimated)

TEL = threshold effects level

P = the percent difference between the original and confirmation analysis is greater than 40%

PEL = probable effects level

U = compound was analyzed, but not detected

TABLE 8A. SEMIVOLATILE ORGANIC COMPOUND CONCENTRATIONS (UG/KG) IN SEDIMENT

SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

ANALYTE	UNITS	Average			Willoughby Bank Reference Site	Dredging Unit 5				Dredging Unit 4			Dredging Unit 3		
		RL	TEL*	PEL*		SC-01	SC-01 Field Duplicate	SC-02	SC-01/02	SC-03	SC-04	SC-03/04	SC-05	SC-06	SC-05/06
1,2,4-TRICHLOROBENZENE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
1,2-DICHLOROBENZENE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
1,2-DIPHENYLHYDRAZINE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
1,3-DICHLOROBENZENE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
1,4-DICHLOROBENZENE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
2,2-OXYBIS[1-CHLOROPROPANE]	UG/KG	63	--	--	9.4 U	13 U	13 U	43 U	77 U	39 U	41 U	79 U	92 U	46 U	90 U
2,4,5-TRICHLOROPHENOL	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
2,4,6-TRICHLOROPHENOL	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
2,4-DICHLOROPHENOL	UG/KG	63	--	--	9.4 U	13 U	13 U	43 U	77 U	39 U	41 U	79 U	92 U	46 U	90 U
2,4-DIMETHYLPHENOL	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
2,4-DINITROPHENOL	UG/KG	1,591	--	--	240 U	330 U	320 U	1100 U	2000 U	1000 U	1000 U	2000 U	2300 U	1200 U	2300 U
2,4-DINITROTOLUENE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
2,6-DINITROTOLUENE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
2-CHLORONAPHTHALENE	UG/KG	63	--	--	9.4 U	13 U	13 U	43 U	77 U	39 U	41 U	79 U	92 U	46 U	90 U
2-CHLOROPHENOL	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
2-METHYLPHENOL	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
2-NITROANILINE	UG/KG	1591	--	--	240 U	330 U	320 U	1100 U	2000 U	1000 U	1000 U	2000 U	2300 U	1200 U	2300 U
2-NITROPHENOL	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
3,3-DICHLOROBENZIDINE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
3-NITROANILINE	UG/KG	1,591	--	--	240 U	330 U	320 U	1100 U	2000 U	1000 U	1000 U	2000 U	2300 U	1200 U	2300 U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	1,591	--	--	240 U	330 U	320 U	1100 U	2000 U	1000 U	1000 U	2000 U	2300 U	1200 U	2300 U
4-BROMOPHENYL PHENYL ETHER	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
4-CHLORO-3-METHYLPHENOL	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
4-CHLOROANILINE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
4-CHLOROPHENYL PHENYL ETHER	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
4-NITROANILINE	UG/KG	1,591	--	--	240 U	330 U	320 U	1100 U	2000 U	1000 U	1000 U	2000 U	2300 U	1200 U	2300 U
4-NITROPHENOL	UG/KG	1,591	--	--	240 U	330 U	320 U	1100 U	2000 U	1000 U	1000 U	2000 U	2300 U	1200 U	2300 U
BENZIDINE	UG/KG	6,294	--	--	940 U	1300 U	1300 U	4300 U	7700 U	3900 U	4100 U	7900 U	9200 U	4600 U	9000 U
BENZOIC ACID	UG/KG	1,591	182	2,647	240 U	330 U	320 U	1100 U	2000 U	1000 U	1000 U	2000 U	2300 U	1200 U	2300 U
BENZYL ALCOHOL	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
BIS(2-CHLOROETHYL)ETHER	UG/KG	63	--	--	9.4 U	13 U	13 U	43 U	77 U	39 U	41 U	79 U	92 U	46 U	90 U
BIS(2-ETHYLHEXYL) PHTHALATE	UG/KG	626	--	--	94 U	69 J	130 U	430 U	770 U	390 U	410 U	780 U	920 U	460 U	890 U
BUTYL BENZYL PHTHALATE	UG/KG	310	--	--	46 U	13 J	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
CARBAZOLE	UG/KG	63	--	--	9.4 U	70	120	43 U	50 J	39 U	41 U	79 U	92 U	46 U	90 U
DIBENZOFURAN	UG/KG	310	--	--	46 U	110	100	210 U	110 J	190 U	200 U	390 U	460 U	230 U	440 U
DIETHYL PHTHALATE	UG/KG	310	--	--	46 U	13 J	12 J	44 J	71 J	42 J	53 J	390 U	460 U	36 J	440 U
DIMETHYL PHTHALATE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
DI-N-BUTYL PHTHALATE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
DI-N-OCTYL PHTHALATE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
HEXACHLOROBENZENE	UG/KG	63	--	--	9.4 U	13 U	13 U	43 U	77 U	39 U	41 U	79 U	92 U	46 U	90 U
HEXACHLOROBUTADIENE	UG/KG	63	--	--	9.4 U	13 U	13 U	43 U	77 U	39 U	41 U	79 U	92 U	46 U	90 U
HEXACHLOROCYCLOPENTADIENE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
HEXACHLOROETHANE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
ISOPHORONE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
METHYLPHENOL, 3 & 4	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
NITROBENZENE	UG/KG	626	--	--	94 U	130 U	130 U	430 U	770 U	390 U	410 U	780 U	920 U	460 U	890 U
N-NITROSODIMETHYLAMINE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
N-NITROSODI-N-PROPYLAMINE	UG/KG	63	--	--	9.4 U	13 U	13 U	43 U	77 U	39 U	41 U	79 U	92 U	46 U	90 U
N-NITROSODIPHENYLAMINE	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
PENTACHLOROPHENOL	UG/KG	310	--	--	46 U	64 U	62 U	210 U	380 U	190 U	200 U	390 U	460 U	230 U	440 U
PHENOL	UG/KG	63	--	--	12	13 U	13 U	43 U	77 U	39 U	41 U	79 U	92 U	46 U	90 U

Source: MacDonald et al. 1996. Ecotoxicology 5:253-278.

NOTES: Bold values represent detected concentration = compound was detected, but below the reporting limit (value is estimated)

TEL = threshold effects level

U = compound was analyzed, but not detected

PEL = probable effects level

TABLE 8B. SEMIVOLATILE ORGANIC COMPOUND CONCENTRATIONS (UG/KG) IN SEDIMENT

SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

ANALYTE	UNITS	Average RL	TEL*	PEL*	Willoughby Bank Reference Site	Dredging Unit 2			Dredging Unit 1		
						SC-07	SC-08	SC-07/08	SC-09	SC-10	SC-09/10
1,2,4-TRICHLOROBENZENE	UG/KG	310.38	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
1,2-DICHLOROBENZENE	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
1,2-DIPHENYLHYDRAZINE	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
1,3-DICHLOROBENZENE	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
1,4-DICHLOROBENZENE	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
2,2'-OXYBIS[1-CHLOROPROPANE]	UG/KG	62.9	--	--	9.4 U	88 U	42 U	89 U	86 U	85 U	84 U
2,4,5-TRICHLOROPHENOL	UG/KG	310.38	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
2,4,6-TRICHLOROPHENOL	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
2,4-DICHLOROPHENOL	UG/KG	63	--	--	9.4 U	88 U	42 U	89 U	86 U	85 U	84 U
2,4-DIMETHYLPHENOL	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
2,4-DINITROPHENOL	UG/KG	1590.6	--	--	240 U	2200 U	1100 U	2200 U	2200 U	2100 U	2100 U
2,4-DINITROTOLUENE	UG/KG	310.38	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
2,6-DINITROTOLUENE	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
2-CHLORONAPHTHALENE	UG/KG	62.9	--	--	9.4 U	88 U	42 U	89 U	86 U	85 U	84 U
2-CHLOROPHENOL	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
2-METHYLPHENOL	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
2-NITROANILINE	UG/KG	1590.6	--	--	240 U	2200 U	1100 U	2200 U	2200 U	2100 U	2100 U
2-NITROPHENOL	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
3,3'-DICHLOROBENZIDINE	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
3-NITROANILINE	UG/KG	1590.625	--	--	240 U	2200 U	1100 U	2200 U	2200 U	2100 U	2100 U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	1590.6	--	--	240 U	2200 U	1100 U	2200 U	2200 U	2100 U	2100 U
4-BROMOPHENYL PHENYL ETHER	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
4-CHLORO-3-METHYLPHENOL	UG/KG	310	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
4-CHLOROANILINE	UG/KG	310.375	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
4-CHLOROPHENYL PHENYL ETHER	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
4-NITROANILINE	UG/KG	1590.63	--	--	240 U	2200 U	1100 U	2200 U	2200 U	2100 U	2100 U
4-NITROPHENOL	UG/KG	1590.63	--	--	240 U	2200 U	1100 U	2200 U	2200 U	2100 U	2100 U
BENZIDINE	UG/KG	6293.75	--	--	940 U	8800 U	4200 U	8900 U	8600 U	8500 U	8400 U
BENZOIC ACID	UG/KG	1590.6	182	2,647	240 U	2200 U	1100 U	2200 U	2200 U	2100 U	2100 U
BENZYL ALCOHOL	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
BIS(2-CHLOROETHYL)ETHER	UG/KG	62.9	--	--	9.4 U	88 U	42 U	89 U	86 U	85 U	84 U
BIS(2-ETHYLHEXYL) PHTHALATE	UG/KG	626.3	--	--	94 U	880 U	420 U	880 U	860 U	840 U	830 U
BUTYL BENZYL PHTHALATE	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
CARBAZOLE	UG/KG	62.94	--	--	9.4 U	88 U	42 U	89 U	86 U	85 U	84 U
DIBENZOFURAN	UG/KG	310.38	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
DIETHYL PHTHALATE	UG/KG	310.4	--	--	46 U	67 J	57 J	240 J	66 J	86 J	130 J
DIMETHYL PHTHALATE	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
DI-N-BUTYL PHTHALATE	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
DI-N-OCTYL PHTHALATE	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
HEXACHLOROBENZENE	UG/KG	62.9	--	--	9.4 U	88 U	42 U	89 U	86 U	85 U	84 U
HEXACHLOROBUTADIENE	UG/KG	62.9	--	--	9.4 U	88 U	42 U	89 U	86 U	85 U	84 U
HEXACHLOROCYCLOPENTADIENE	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
HEXACHLOROETHANE	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
ISOPHORONE	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
METHYLPHENOL, 3 & 4	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
NITROBENZENE	UG/KG	626.3	--	--	94 U	880 U	420 U	880 U	860 U	840 U	830 U
N-NITROSODIMETHYLAMINE	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
N-NITROSODI-N-PROPYLAMINE	UG/KG	62.94	--	--	9.4 U	88 U	42 U	89 U	86 U	85 U	84 U
N-NITROSODIPHENYLAMINE	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
PENTACHLOROPHENOL	UG/KG	310.4	--	--	46 U	440 U	210 U	440 U	420 U	420 U	410 U
PHENOL	UG/KG	62.94	--	--	12	88 U	42 U	89 U	86 U	85 U	84 U

* Source: MacDonald et al., 1996. Ecotoxicology 5:253-278.

NOTES: Bold values represent detected concentration. J = compound was detected, but below the reporting limit (value is estimated)

TEL = threshold effects level

U = compound was analyzed, but not detected

PEL = probable effects level

TABLE 9A. BUTYLTIN CONCENTRATIONS (UG/KG) IN SEDIMENT
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

Analyt	Units	Average RL	Willoughby Bank Reference Site	Dredging Unit 5				Dredging Unit 4			Dredging Unit 3		
				SC-01	SC-01 Field Duplicate	SC-02	SC-01/02	SC-03	SC-04	SC-03/04	SC-05	SC-06	SC-05/06
DIBUTYLTIN	UG/KG	3.2	6.9 U	2.5 U	2.4 U	3.3 U	3 U	3.1 U	3.2 U	3.1 U	3.6 U	3.6 U	3.4 U
MONOBUTYLTIN	UG/KG	12.3	1.8 U	9.7 U	9.4 U	13 U	11 U	12 U	12 U	12 U	14 U	14 U	13 U
TRIBUTYLTIN	UG/KG	3.71	2.1 U	2.9 U	2.8 U	3.8 U	3.4 U	3.6 U	3.7 U	3.6 U	4.2 U	4.2 U	4 U
TETRABUTYLTIN	UG/KG	4.21	2.3 U	3.3 U	3.2 U	4.3 U	3.9 U	4.1 U	4.2 U	4.1 U	4.8 U	4.8 U	4.5 U

NOTE: RL is reported for non-detected constituents.

RL = average reporting limit

U = compound was analyzed, but not detected

TABLE 9B. BUTYLTIN CONCENTRATIONS (UG/KG) IN SEDIMENT

SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

Analyt	Units	Average RL	Willoughby Bank Reference Site	Dredging Unit 2			Dredging Unit 1		
				SC-07	SC-08	SC-07/08	SC-09	SC-10	SC-09/10
DIBUTYLTIN	UG/KG	3.2	6.9 U	3.5 U	3.2 U	3.4 U	3.4 U	3.3 U	3.2 U
MONOBUTYLTIN	UG/KG	12.3	1.8 U	13 U	12 U	13 U	13 U	13 U	12 U
TRIBUTYLTIN	UG/KG	3.71	2.1 U	4 U	3.7 U	4 U	3.9 U	3.8 U	3.7 U
TETRABUTYLTIN	UG/KG	4.21	2.3 U	4.5 U	4.2 U	4.5 U	4.4 U	4.3 U	4.2 U

NOTE: RL is reported for non-detected constituents.

RL = average reporting limit

U = compound was analyzed, but not detected

TABLE 10. GENERAL CHEMISTRY RESULTS FOR SITE WATER AND STANDARD ELUTRIATES
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

ANALYTE	UNITS	Average RL	USEPA Acute Criteria	Site Water	Dredging Unit 5	Dredging Unit 4	Dredging Unit 3	Dredging Unit 2	Dredging Unit 1
					SC-01/02	SC-03/04	SC-05/06	SC-07/08	SC-09/10
AMMONIA	MG/L	0.433	4.91 ^a	0.062 J B	19 B	16 B	15 B	20 B	20 B
CYANIDE, TOTAL	UG/L	10	1 ^b	10 U	10 U	10 U	10 U	10 U	10 U
DISSOLVED ORGANIC CARBON	MG/L	1	--	5.2	5.7	7.1	7.2	8.1	7.8
SULFIDE	MG/L	3	--	3 U	1.9 J	0.99 J	1.5 J	0.68 J	1.2 J
TOTAL SUSPENDED SOLIDS	MG/L	2.02	--	41	3.2	3.3	4	3.2	2.8

(a) Ammonia criteria calculated based on salinity, water temperature, and pH at the NODS during receiving water collection

(b) USEPA 2014. *National Recommended Water Quality Criteria*

NOTES: Bold values represent detected concentrations; RL is reported for non-detected constituents

B = compound was detected in the laboratory method blank

J = compound was detected, but below the reporting limit (value is estimated)

U = compound was analyzed, but not detected

TABLE 11. METAL CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

ANALYTE	UNITS	Average RL	USEPA ACUTE CRITERIA *	Site Water
ALUMINUM	UG/L	125	--	0.37
ANTIMONY	UG/L	8.34	--	0.00022 J
ARSENIC	UG/L	4.17	69	0.0064
BARIUM	UG/L	41.7	--	0.05
BERYLLIUM	UG/L	4.17	--	0.005 U
CADMIUM	UG/L	4.17	40	0.005 U
CALCIUM	UG/L	417	--	110 B
CHROMIUM	UG/L	8.34	1,100	0.0034 J
COBALT	UG/L	2.08	--	0.00043 J
COPPER	UG/L	8.34	4.8	0.0035 J
IRON	UG/L	208	--	0.48
LEAD	UG/L	4.17	210	0.00049 J B
MAGNESIUM	UG/L	417	--	340
MANGANESE	UG/L	20.8	--	0.028
MERCURY	UG/L	0.20	1.8	0.2 U
NICKEL	UG/L	4.17	74	0.0012 J
SELENIUM	UG/L	20.8	290	0.026 B
SILVER	UG/L	4.17	1.9	0.005 U
THALLIUM	UG/L	4.17	--	0.00016 J
VANADIUM	UG/L	4.17	--	0.0034 J B
ZINC	UG/L	20.8	90	0.01 J B

*Source: USEPA 2014. *National Recommended Water Quality Criteria*

NOTES: Bold values represent detected concentrations. Shaded concentrations exceed water quality criteria

RL is reported for non-detected constituents

B = compound was detected in the laboratory method blank

J = compound was detected, but below the reporting limit (value is estimated)

U = compound was analyzed, but not detected

Dredging Unit 5	Dredging Unit 4	Dredging Unit 3	Dredging Unit 2	Dredging Unit 1
SC-01/02	SC-03/04	SC-05/06	SC-07/08	SC-09/10
150 U	150 U	150 U	150 U	150 U
0.4 J	0.43 J	0.47 J	0.55 J	0.61 J
15	16	16	19	20
150	140	180	180	190
0.46 J	0.33 J	5 U	0.24 J	0.24 J
5 U	5 U	5 U	5 U	5 U
110,000	110,000	110,000	110,000	110,000
25	28	30		31
1.2 J	1.4 J	2.1 J	2.5	2.7
3.5 J	2.4 J	2.5 J	3.2 J	2.8 J
160 J	190 J	1,200	1,100	2,100
5 U	5 U	5 U	5 U	5 U
340,000	340,000	350,000	350,000	350,000
2,300	2,700	5,300	3,600	3,200
0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
7.3 B	7.5 B	8.5 B	9.4 B	9.5 B
64	71	72	77	78
5 U	5 U	5 U	5 U	5 U
5 U	5 U	5 U	5 U	5 U
4.1 J B	5 U	8.7 B	0.69 J B	9.9 B
9.1 J	6.6 J	6.8 J	7.2 J	6.5 J

TABLE 12. PAH CONCENTRATIONS (UG/L) SITE WATER AND STANDARD ELUTRIATES
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

			Site Water	Dredging Unit 5	Dredging Unit 4	Dredging Unit 3	Dredging Unit 2	Dredging Unit 1
ANALYTE	UNITS	Average RL		SC-01/02	SC-03/04	SC-05/06	SC-07/08	SC-09/10
LOW MOLECULAR WEIGHT PAHs (LPAHs)								
1-METHYLNAPHTHALENE*	UG/L	0.21	0.19 U	0.47	0.22 U	0.21 U	0.2 U	0.22 U
2-METHYLNAPHTHALENE*	UG/L	0.21	0.19 U	0.48	0.22 U	0.21 U	0.2 U	0.22 U
ACENAPHTHENE*	UG/L	0.21	0.19 U	1.1	0.22 U	0.21 U	0.2 U	0.22 U
ACENAPHTHYLENE	UG/L	0.21	0.19 U	0.041 J	0.22 U	0.21 U	0.2 U	0.22 U
ANTHRACENE*	UG/L	0.2	0.19 U	0.024 J	0.22 U	0.21 U	0.2 U	0.22 U
FLUORENE*	UG/L	0.2	0.19 U	0.37	0.22 U	0.21 U	0.2 U	0.22 U
NAPHTHALENE*	UG/L	0.21	0.19 U	1.5	0.22 U	0.21 U	0.2 U	0.22 U
PHENANTHRENE*	UG/L	0.2	0.19 U	0.22	0.22 U	0.21 U	0.2 U	0.22 U
TOTAL LPAHs (ND=RL)	UG/L	--	1.33	4.16	1.54	1.47	1.4	1.54
HIGH MOLECULAR WEIGHT PAHs (HPAHs)								
BENZO(A)ANTHRACENE*	UG/L	0.2	0.19 U	0.19 U	0.22 U	0.21 U	0.2 U	0.22 U
BENZO(A)PYRENE*	UG/L	0.21	0.19 U	0.19 U	0.22 U	0.21 U	0.2 U	0.22 U
BENZO(B)FLUORANTHENE	UG/L	0.2	0.19 U	0.19 U	0.22 U	0.21 U	0.2 U	0.22 U
BENZO(GHI)PERYLENE	UG/L	0.21	0.19 U	0.19 U	0.22 U	0.21 U	0.2 U	0.22 U
BENZO(K)FLUORANTHENE	UG/L	0.21	0.19 U	0.19 U	0.22 U	0.21 U	0.2 U	0.22 U
CHRYSENE*	UG/L	0.2	0.19 U	0.19 U	0.22 U	0.21 U	0.2 U	0.22 U
DIBENZO(A,H)ANTHRACENE*	UG/L	0.2	0.19 U	0.19 U	0.22 U	0.21 U	0.2 U	0.22 U
FLUORANTHENE*	UG/L	0.2	0.19 U	0.032 J	0.22 U	0.21 U	0.2 U	0.22 U
INDENO(1,2,3-CD)PYRENE	UG/L	0.2	0.19 U	0.19 U	0.22 U	0.21 U	0.2 U	0.22 U
PYRENE*	UG/L	0.2	0.19 U	0.026 J	0.22 U	0.21 U	0.2 U	0.22 U
TOTAL HPAHs (ND=RL)	UG/L	--	1.14	0.818	1.32	1.26	1.2	1.32
TOTAL PAHs								
TOTAL PAHs (ND=RL)	UG/L	--	3.42	5.78	3.96	3.78	3.6	3.96

* PAHs used for Total LPAH and Total HPAH summation, as per Table 5-5 of the SERIM (USEPA/USACE 2008)

There are no USEPA criteria for aquatic life for the tested PAHs or total PAH concentrations.

NOTES: Bold values represent detected concentrations. RL is reported for non-detected constituents

J = compound was detected, but below the reporting limit (value is estimated)

U = compound was analyzed, but not detected

TABLE 13. PCB CONGENER CONCENTRATIONS (NG/L) IN SITE WATER AND STANDARD ELUTRIATES
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

			Site Water
ANALYTE	UNITS	Average RL	
PCB 8 (BZ)*	NG/L	0.9767	1.4
PCB 18 (BZ)*	NG/L	0.9767	0.31 J P
PCB 28 (BZ)*	NG/L	0.9767	0.95 U
PCB 44 (BZ)*	NG/L	0.9767	0.95 U
PCB 49 (BZ)	NG/L	0.9767	0.95 U
PCB 52 (BZ)*	NG/L	0.9767	0.95 U
PCB 66 (BZ)*	NG/L	0.9767	0.95 U
PCB 77 (BZ)	NG/L	0.9767	0.95 U
PCB 87 (BZ)	NG/L	0.9767	0.95 U
PCB 101 (BZ)*	NG/L	0.9767	0.95 U
PCB 105 (BZ)*	NG/L	0.9767	0.95 U
PCB 118 (BZ)*	NG/L	0.9767	0.95 U
PCB 126 (BZ)	NG/L	0.9767	0.95 U
PCB 128 (BZ)*	NG/L	0.9767	0.95 U
PCB 138 (BZ)*	NG/L	0.9767	0.95 U
PCB 153 (BZ)*	NG/L	0.9767	0.95 U
PCB 156 (BZ)	NG/L	0.9767	0.95 U
PCB 169 (BZ)	NG/L	0.9767	0.95 U
PCB 170 (BZ)*	NG/L	0.9767	0.95 U
PCB 180 (BZ)*	NG/L	0.9767	0.95 U
PCB 183 (BZ)	NG/L	0.9767	0.95 U
PCB 184 (BZ)	NG/L	0.9767	0.95 U
PCB 187 (BZ)*	NG/L	0.9767	0.95 U
PCB 195 (BZ)*	NG/L	0.9767	0.95 U
PCB 206 (BZ)*	NG/L	0.9767	0.95 U
PCB 209 (BZ)*	NG/L	0.9767	0.95 U
TOTAL PCBs (ND=RL)	NG/L	--	33.8

Dredging Unit 5	Dredging Unit 4	Dredging Unit 3	Dredging Unit 2	Dredging Unit 1
SC-01/02	SC-03/04	SC-05/06	SC-07/08	SC-09/10
0.28 J P B	1 U	0.34 J B	0.53 J B	0.39 J P
0.23 J B	0.32 J B	0.98 U	0.22 J P B	1 U
0.94 U	1 U	0.98 U	0.99 U	1 U
0.94 U	1 U	0.98 U	0.99 U	1 U
0.94 U	1 U	0.98 U	0.99 U	1 U
0.94 U	1 U	0.98 U	0.99 U	1 U
0.94 U	1 U	0.98 U	0.99 U	1 U
0.94 U	1 U	0.98 U	0.24 J P	1 U
0.94 U	1 U	0.98 U	0.99 U	1 U
0.94 U	1 U	0.98 U	0.99 U	1 U
0.94 U	1 U	0.98 U	0.99 U	1 U
0.94 U	1 U	0.98 U	0.99 U	1 U
0.94 U	1 U	0.98 U	0.99 U	1 U
0.94 U	1 U	0.98 U	0.99 U	1 U
0.94 U	1 U	0.98 U	0.99 U	1 U
0.94 U	1 U	0.98 U	0.99 U	1 U
0.94 U	1 U	0.98 U	0.99 U	1 U
0.94 U	1 U	0.98 U	0.99 U	1 U
0.94 U	1 U	0.98 U	0.99 U	1 U
31.1	34.6	34.0	33.2	34.8

* PCB congeners used for Total PCB summation, as per Table 5-6 of the SERIM (USEPA/USACE 2008)

NOTES: Bold values represent detected concentrations. RL is reported for non-detected constituents

J = compound was detected, but below the reporting limit (value is estimated)

P = the percent difference between the original and confirmation analysis is greater than 40%

U = compound was analyzed, but not detected

TABLE 14. DIOXIN AND FURAN CONGENER CONCENTRATIONS (PG/L) IN SITE WATER AND STANDARD ELUTRIATES
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

ANALYTE	UNITS	Average RL	TEF*	Site Water	Dredging Unit 5	Dredging Unit 4	Dredging Unit 3	Dredging Unit 2	Dredging Unit 1
					SC-01/02	SC-03/04	SC-05/06	SC-07/08	SC-09/10
2,3,7,8-TCDD	PG/L	9.780	1	9.4 U	9.5 U	10 U	0.39 Q J	9.7 U	10 U
1,2,3,7,8-PECDD	PG/L	49.60	1	47 U	48 U	52 U	49 U	48 U	51 U
1,2,3,4,7,8-HXCDD	PG/L	49.60	0.1	47 U	48 U	52 U	4.4 J	4.7 Q J	0.26 Q J
1,2,3,6,7,8-HXCDD	PG/L	49.60	0.1	47 U	260 B	1.4 Q B J	16 B J	8.5 Q B J	2.2 Q B J
1,2,3,7,8,9-HXCDD	PG/L	49.60	0.1	0.32 Q J	48 U	0.95 Q J	4.5 Q J	5 Q J	1.7 Q J
1,2,3,4,6,7,8-HPCDD	PG/L	49.60	0.01	1.8 Q B J	6,000 B	77 B	340 B	240 B	92 B
OCDD	PG/L	97.8	0.0003	37 B J	17,000 B	1,200 B	1,600 B	2,600 B	1,800 B
2,3,7,8-TCDF	PG/L	9.78	0.1	9.4 U	9.5 U	10 U	9.7 U	9.7 U	10 U
1,2,3,7,8-PECDF	PG/L	49.60	0.03	0.15 Q J	48 U	52 U	49 U	48 U	51 U
2,3,4,7,8-PECDF	PG/L	49.60	0.3	47 U	48 U	52 U	1.4 Q J	48 U	51 U
1,2,3,4,7,8-HXCDF	PG/L	49.60	0.1	47 U	48 U	52 U	3.3 Q J	7 Q J	51 U
1,2,3,6,7,8-HXCDF	PG/L	49.60	0.1	47 U	63 Q	52 U	2.3 Q J	6.6 Q J	0.78 Q J
2,3,4,6,7,8-HXCDF	PG/L	49.60	0.1	47 U	48 U	52 U	26 Q J	6.6 Q J	0.4 Q J
1,2,3,7,8,9-HXCDF	PG/L	49.60	0.1	47 U	48 U	52 U	4.8 Q B J	5.3 Q B J	51 U
1,2,3,4,6,7,8-HPCDF	PG/L	49.60	0.01	47 U	2,700 B	9.8 B J	140 B	59 B	12 B J
1,2,3,4,7,8,9-HPCDF	PG/L	49.60	0.01	47 U	210	0.31 Q J	49 U	48 U	0.47 Q J
OCDF	PG/L	97.8	0.0003	0.69 Q B J	10,000 Q B	22 B J	540 Q B	280 B	26 Q B J
DIOXIN TEQ (ND=RL)	PG/L	--	--	101	218	107	59.3	78.8	90.6

*Source : Van den Berg, M, et al. 2006. The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors

for Dioxins and Dioxin-Like Compounds. *Toxicological Sciences* 93(2):223-241.

NOTES: Bold values represent detected concentrations; RL is reported for non-detected constituents.

RL = average reporting limit

B = detected in the laboratory method blank

TEF = toxicity equivalency factor

J = compound was detected, but below the reporting limit (value is estimated)

TEQ = toxicity equivalency quotient

Q = estimated maximum possible concentration

U = compound was analyzed, but not detected

TABLE 15. SEMIVOLATILE ORGANIC COMPOUND CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

ANALYTE	UNITS	Average RL	USEPA ACUTE CRITERIA **	Site Water	Dredging Unit 5	Dredging Unit 4	Dredging Unit 3	Dredging Unit 2	Dredging Unit 1
					SC-01/02	SC-03/04	SC-05/06	SC-07/08	SC-09/10
1,2,4-TRICHLOROBENZENE	UG/L	1.02	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
1,2-DICHLOROBENZENE	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
1,2-DIPHENYLHYDRAZINE	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
1,3-DICHLOROBENZENE	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
1,4-DICHLOROBENZENE	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
2,2'-OXYBIS[1-CHLOROPROPANE]	UG/L	0.2	--	0.19 U	0.19 U	0.22 U	0.21 U	0.2 U	0.22 U
2,4,5-TRICHLOROPHENOL	UG/L	1.02	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
2,4,6-TRICHLOROPHENOL	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
2,4-DICHLOROPHENOL	UG/L	0	--	0.19 U	0.19 U	0.22 U	0.21 U	0.2 U	0.22 U
2,4-DIMETHYLPHENOL	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
2,4-DINITROPHENOL	UG/L	5.1	--	4.8 U	4.8 U	5.4 U	5.2 U	5 U	5.6 U
2,4-DINITROTOLUENE	UG/L	1.02	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
2,6-DINITROTOLUENE	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
2-CHLORONAPHTHALENE	UG/L	0.2	--	0.19 U	0.19 U	0.22 U	0.21 U	0.2 U	0.22 U
2-CHLOROPHENOL	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
2-METHYLPHENOL	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
2-NITROANILINE	UG/L	5.1	--	4.8 U	4.8 U	5.4 U	5.2 U	5 U	5.6 U
2-NITROPHENOL	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
3,3'-DICHLOROBENZIDINE	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
3-NITROANILINE	UG/L	5.13	--	4.8 U	4.8 U	5.4 U	5.2 U	5 U	5.6 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	5.1	--	4.8 U	4.8 U	5.4 U	5.2 U	5 U	5.6 U
4-BROMOPHENYL PHENYL ETHER	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
4-CHLORO-3-METHYLPHENOL	UG/L	1	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
4-CHLOROANILINE	UG/L	1.02	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
4-NITROANILINE	UG/L	5.13	--	4.8 U	4.8 U	5.4 U	5.2 U	5 U	5.6 U
4-NITROPHENOL	UG/L	5.13	--	4.8 U	4.8 U	5.4 U	5.2 U	5 U	5.6 U
BENZIDINE	UG/L	20.50	--	19 U	19 U	22 U	21 U	20 U	22 U
BENZOIC ACID	UG/L	5.1	--	4.8 U	4.8 U	1.9 J	5.2 U	4 J	5.6 U
BENZYL ALCOHOL	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
BIS(2-CHLOROETHOXY)METHANE	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
BIS(2-CHLOROETHYL)ETHER	UG/L	0.2	--	0.19 U	0.19 U	0.22 U	0.21 U	0.2 U	0.22 U
BIS(2-ETHYLHEXYL) PHTHALATE	UG/L	2.1	--	1.9 U	1.9 U	2.2 U	2.1 U	2 U	2.2 U
BUTYL BENZYL PHTHALATE	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	0.15 J	1 U	1.1 U
CARBAZOLE	UG/L	0.21	--	0.19 U	0.14 J	0.22 U	0.21 U	0.2 U	0.22 U
DIBENZOFURAN	UG/L	1.02	--	0.95 U	0.2 J	1.1 U	1 U	1 U	1.1 U
DIETHYL PHTHALATE	UG/L	1.0	--	0.95 U	0.22 J	0.21 J	0.23 J	0.37 J	0.2 J
DIMETHYL PHTHALATE	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
DI-N-BUTYL PHTHALATE	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
DI-N-OCTYL PHTHALATE	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
HEXACHLOROBENZENE	UG/L	0.2	--	0.19 U	0.19 U	0.22 U	0.21 U	0.2 U	0.22 U
HEXACHLOROBUTADIENE	UG/L	0.2	--	0.19 U	0.19 U	0.22 U	0.21 U	0.2 U	0.22 U
HEXACHLOROCYCLOPENTADIENE	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
HEXACHLOROETHANE	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
ISOPHORONE	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
METHYLPHENOL, 3 & 4	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
NITROBENZENE	UG/L	2.1	--	1.9 U	1.9 U	2.2 U	2.1 U	2 U	2.2 U
N-NITROSODIMETHYLAMINE	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
N-NITROSODI-N-PROPYLAMINE	UG/L	0.21	--	0.19 U	0.19 U	0.22 U	0.21 U	0.2 U	0.22 U
N-NITROSODIPHENYLAMINE	UG/L	1.0	--	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
PENTACHLOROPHENOL	UG/L	1.0	13	0.95 U	0.95 U	1.1 U	1 U	1 U	1.1 U
PHENOL	UG/L	0.21	--	0.19 U	0.19 U	0.22 U	0.21 U	0.2 U	0.22 U

*Source : USEPA 2014. *National Recommended Water Quality Criteria*

NOTES: Bold values represent detected concentrations. RL is reported for non-detected constituents.

J = compound was detected, but below the reporting limit (value is estimated)

U = compound was analyzed, but not detected

TABLE 16. PESTICIDE CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

ANALYTE	UNITS	Average RL	USEPA ACUTE CRITERIA *	Site Water
2,4'-DDD	UG/L	0.001	--	0.0012 U
2,4'-DDE	UG/L	0.001	--	0.0012 U
2,4'-DDT	UG/L	0.001	--	0.0012 U
4,4'-DDD	UG/L	0.001	--	0.0012 U
4,4'-DDE	UG/L	0.001	--	0.0012 U
4,4'-DDT	UG/L	0.001	0.13	0.0012 U
Total DDTs (ND=RL)	UG/L	---	---	0.0036
ALDRIN	UG/L	0.001	1.3	0.0012 U
ALPHA-BHC	UG/L	0.001	--	0.0012 U
BETA-BHC	UG/L	0.001	--	0.0012 U
CHLORDANE (TECHNICAL)	UG/L	0.012	0.09	0.012 U
ALPHA-CHLORDANE	UG/L	0.001	0.09	0.0012 U
GAMMA-CHLORDANE	UG/L	0.001	0.09	0.0012 U
CHLOROBENSIDE	UG/L	0.003	--	0.003 U
DACHTAL	UG/L	0.002	--	0.0024 U
DELTA-BHC	UG/L	0.001	--	0.0012 U
DIELDRIN	UG/L	0.001	0.71	0.0012 U
ENDOSULFAN I	UG/L	0.001	0.034	0.0012 U
ENDOSULFAN II	UG/L	0.001	0.034	0.0012 U
ENDOSULFAN SULFATE	UG/L	0.001	--	0.0012 U
ENDRIN	UG/L	0.001	0.037	0.0012 U
ENDRIN ALDEHYDE	UG/L	0.001	--	0.0012 U
ENDRIN KETONE	UG/L	0.001	--	0.0012 U
GAMMA-BHC	UG/L	0.001	0.16	0.0012 U
HEPTACHLOR	UG/L	0.001	0.053	0.0012 U
HEPTACHLOR EPOXIDE	UG/L	0.001	0.053	0.0012 U
METHOXYCHLOR	UG/L	0.002	--	0.0024 U
MIREX	UG/L	0.001	--	0.0012 U
TOXAPHENE	UG/L	0.097	0.21	0.094 U
ORGANOPHOSPHORUS PESTICIDES				
AZINPHOS-METHYL	UG/L	1.0	--	0.95 U
DEMETON, TOTAL	UG/L	2.0	--	1.9 U
DEMETON-O	UG/L	1.0	--	0.95 U
DEMETON-S	UG/L	1.0	--	0.95 U
MALATHION	UG/L	1.0	--	0.95 U
METHYL PARATHION	UG/L	1.0	--	0.95 U
PARATHION	UG/L	1.0	--	0.95 U

*Source : USEPA 2014. *National Recommended Water Quality Criteria*

NOTES: Bold values represent detected concentrations. Shaded concentrations exceed sediment quality guidelines.

RL is reported for non-detected constituents.

J = compound was detected, but below the reporting limit (value is estimated)

P = the percent difference between the original and confirmation analysis is greater than 40%

U = compound was analyzed, but not detected

Dredging Unit 5	Dredging Unit 4	Dredging Unit 3	Dredging Unit 2	Dredging Unit 1
SC-01/02	SC-03/04	SC-05/06	SC-07/08	SC-09/10
0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
0.00026 J	0.00041 J	0.00037 J P	0.00063 J	0.00025 J P
0.0012 U	0.00054 J P	0.0013 U	0.00038 J P	0.00049 J P
0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
0.0036	0.0039	0.0039	0.0039	0.0039
0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
0.0028	0.0013 U	0.0035 P	0.0012 J P	0.0012 J P
0.016	0.012 J P	0.024	0.019	0.013 U
0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
0.003 U	0.0032 U	0.0031 U	0.0031 U	0.0032 U
0.0024 U	0.0005 J	0.0025 U	0.0024 U	0.0011 J
0.0016	0.0011 J P	0.0019	0.0022	0.0019
0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
0.0012 U	0.0013 U	0.0022	0.0013 U	0.0025 P
0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
0.0024 U	0.0025 U	0.0025 U	0.0024 U	0.0025 U
0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
0.094 U	0.1 U	0.098 U	0.097 U	0.1 U
0.94 U	1 U	1 U	1 U	1 U
1.9 U	2 U	2 U	2 U	2 U
0.94 U	1 U	1 U	1 U	1 U
0.94 U	1 U	1 U	1 U	1 U
0.94 U	1 U	1 U	1 U	1 U
0.94 U	1 U	1 U	1 U	1 U
0.94 U	1 U	1 U	1 U	1 U

TABLE 17. BUTYLTIN CONCENTRATIONS (UG/L) IN SITE WATER AND STANDARD ELUTRIATES
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

Analyt	unit	Average RL	Site Water
MONOBUTYLTIN	UG/L	0.495	0.48 U
DIBUTYLTIN	UG/L	0.038	0.037 U
TRIBUTYLTIN	UG/L	0.044	0.043 U
TETRABUTYLTIN	UG/L	0.050	0.048 U
TOTAL ORGANOTINS	UG/L	--	0.361

Dredging Unit 5	Dredging Unit 4	Dredging Unit 3	Dredging Unit 2	Dredging Unit 1
SC-01/02	SC-03/04	SC-05/06	SC-07/08	SC-09/10
0.47 U	0.51 U	0.49 U	0.49 U	0.53 U
0.037 U	0.039 U	0.038 U	0.04	0.041 U
0.042 U	0.045 U	0.044 U	0.044 U	0.048 U
0.047 U	0.051 U	0.049 U	0.049 U	0.053 U
0.354	0.383	0.369	0.370	0.399

NOTES: RL is reported for non-detected constituents.

U = compound was analyzed, but not detected

TABLE 18. RESULTS OF WATER COLUMN BIOASSAYS
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

Channel Reach		<i>Mytilus galloprovincialis</i>			<i>Menidia beryllina</i>			<i>Americamysis bahia</i>		
		48-hour EC ₅₀ (% elutriate)	Statistical Difference 100% vs. Control ^(a)	Dilution Required to Achieve 0.01 EC ₅₀ ^(b)	96-hour LC ₅₀ (% elutriate)	Statistical Difference 100% vs. Control ^(a)	Dilution Required to Achieve 0.01 LC ₅₀	96-hour LC ₅₀ (% elutriate)	Statistical Difference 100% vs. Control ^(a)	Dilution Required to Achieve 0.01 LC ₅₀
Dredging Unit 5	SC-01/02-SED	22.5	Yes	443	>100	No	--	>100	No	--
Dredging Unit 4	SC-03/04-SED	23.1	Yes	432	>100	No	--	>100	No	--
Dredging Unit 3	SC-05/06-SED	26.3	Yes	379	>100	No	--	>100	No	--
Dredging Unit 2	SC-07/08-SED	27.6	Yes	361	>100	No	--	>100	No	--
Dredging Unit 1	SC-09/10-SED	24.2	Yes	412	>100	No	--	>100	No	--

(a) Statistical significance analyzed at p=0.05; survival (LC₅₀) or effect (EC₅₀) in 100% elutriate concentration significantly lower than the control.

(b) Dilution adjusted by STFATE model using receiving water concentration as input for background concentrations.

TABLE 19. RESULTS OF 10-DAY WHOLE SEDIMENT BIOASSAYS
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

Sample Identification		<i>Neanthes arenaceodentata</i>			<i>Leptocheirus plumulosus</i>		
		No. Alive/No. Exposed ^(a)	10-Day Mean Percent Survival	Statistical Difference vs. Reference ^(c)	No. Alive/No. Exposed ^(b)	10-Day Mean Percent Survival	Statistical Difference vs. Reference ^(c)
Willoughby Bank Reference		25 / 25	100	NA	97 / 100	97	NA
Dredging Unit 5	SC-01/02-SED	25/25	100	No	100/100	100	No
Dredging Unit 4	SC-03/04-SED	25/25	100	No	98/100	98	No
Dredging Unit 3	SC-05/06-SED	25/25	100	No	96/100	96	No
Dredging Unit 2	SC-07/08-SED	25/25	100	No	101/102	99	No
Dredging Unit 1	SC-09/10-SED	26/27	97	No	98/100	98	No
Lab Control		24 / 25	96	No	98 / 100	98	No
Chesapeake Bay Control		24 / 25	96	No	97 / 100	97	No

(a) Total for five replicates of five animals, unless otherwise stated.

(b) Total for five replicates of twenty animals, unless otherwise stated.

(c) Statistical significance analyzed at p=0.05; channel sediments statistically compared to Willoughby Bank reference site.

NA = not applicable; reference is not compared to itself

**TABLE 20. SUMMARY OF SURVIVAL AND RECOVERY RESULTS FOR BIOACCUMULATION TESTS
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA**

		<i>Nereis virens</i>			<i>Macoma nasuta</i>		
		No. Alive/No. Exposed ^(a)	28-Day Mean Survival (percent)	Statistical Difference vs. Reference ^(b)	No. Alive/No. Exposed ^(c)	28-Day Mean Survival (percent)	Statistical Difference vs. Reference ^(b)
Willoughby Bank Reference		105 / 105	100	NA	230 / 235	98	NA
Lab Control		63 / 63	100	No	139 / 141	99	No
Dredging Unit 5	SC-01/02-SED	101 / 105	96	No	224 / 235	95	No
Dredging Unit 4	SC-03/04-SED	103 / 105	98	No	231 / 235	98	No
Dredging Unit 3	SC-05/06-SED	104 / 105	99	No	229 / 235	97	No
Dredging Unit 2	SC-07/08-SED	102 / 105	97	No	232 / 235	99	No
Dredging Unit 1	SC-09/10-SED	100 / 105	95	No	232 / 235	99	No

(a) Total for five replicates of twenty-one animals. Lab control had three replicates of twenty-one organisms.

(b) Statistical significance analyzed at p=0.05; site sediments statistically compared to Willoughby Bank reference site.

(c) Total for five replicates of forty-seven animals. Lab control had three replicates of forty-seven organisms.

**TABLE 21. MEAN METAL CONCENTRATIONS (MG/KG) IN TISSUES
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA**

ANALYTE	UNITS	PRETEST		Willoughby Bank Reference		Dredging Unit 5		Dredging Unit 4		Dredging Unit 3		Dredging Unit 2		Dredging Unit 1	
		Worms	Clams	Worms	Clams	SC-01/02		SC-03/04		SC-05/06		SC-07/08		SC-09/10	
		Lipids = 0.75%	Lipids = 0.71%	Lipids = 0.68%	Lipids = 0.48%	Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams
		Lipids = 0.69%	Lipids = 0.56%	Lipids = 0.72%	Lipids = 0.61%	Lipids = 0.74%	Lipids = 0.57%	Lipids = 0.70%	Lipids =0.52%	Lipids = 0.76%	Lipids = 0.50%				
ANTIMONY	MG/KG	0.00693	0.0183	0.024	0.0246	0.0223	0.026	0.0164	0.0318	0.0196	0.0276	0.0184	0.0136	0.0142	0.0396
ARSENIC	MG/KG	1.77	2.8	2.32	2.44	1.74	2.5	1.88	2.38	1.84	2.7	1.84	2.56	1.76	2.54
BERYLLIUM	MG/KG	ND	ND	ND	ND	0.0784	ND	0.0814	0.0711	ND	ND	ND	ND	0.0754	0.0739
CADMIUM	MG/KG	ND	0.021	0.0258	0.0789	0.02	0.0236	0.022	0.0186	0.021	0.0154	0.022	0.0196	0.0202	0.0332
CHROMIUM	MG/KG	0.11	0.149	0.15	0.228	0.166	0.105	0.35	0.154	0.118	0.29	0.163	0.252	0.363	0.314
COPPER	MG/KG	1.17	3.4	1.12	2.16	1.06	1.72	1.12	1.96	1.01	2.54	1.01	2.5	1.07	2.28
LEAD	MG/KG	0.0817	0.143	0.0856	0.192	0.123	0.174	0.203	0.17	0.0878	0.208	0.0868	0.198	0.164	0.198
MERCURY	MG/KG	0.024	ND	0.025	0.0134	0.0156	ND	0.0172	ND	0.012	0.018	0.0174	0.0202	0.0298	0.0144
NICKEL	MG/KG	0.22	0.423	0.244	0.458	0.27	0.396	0.332	0.43	0.214	0.558	0.218	0.532	0.312	0.546
SELENIUM	MG/KG	0.427	0.483	0.3	0.428	0.25	0.334	0.268	0.386	0.268	0.48	0.284	0.484	0.302	0.474
SILVER	MG/KG	0.0257	0.0387	0.0143	0.0146	0.0105	0.0142	0.0129	0.0131	0.014	0.0216	0.0132	0.0202	0.014	0.021
THALLIUM	MG/KG	ND	ND	ND	0.0398	0.023	0.0752	0.0776	0.0205	0.0794	0.0064	ND	0.0307	0.0737	0.071
ZINC	MG/KG	8.23	15.3	15.8	14.4	11	12.2	16.2	13	11.3	15.2	14.8	14	23.5	14.2

NOTE: For pre-test and control tissues n = 3 and for all other tissue tests n = 5.

Nereis virens species used for worm tissue tests and *Macoma nasuta* used for clam tissue tests.

ND = not detected or was detected below the reporting limit in each of the tested tissue replicates.

analyte concentration is significantly higher than the Willoughby Bank reference site concentration (p>0.05)

analyte concentration is significantly higher than the Willoughby Bank reference site concentration (p>0.05) and the pre-test tissue concentration (p>0.05)

TABLE 22. MEAN PAH CONCENTRATIONS (UG/KG) IN TISSUES
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

ANALYTE	UNITS	PRETEST		Willoughby Bank Reference		Dredging Unit 5		Dredging Unit 4		Dredging Unit 3		Dredging Unit 2		Dredging Unit 1	
						SC-01/02		SC-03/04		SC-05/06		SC-07/08		SC-09/10	
		Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams
		Lipids = 0.75%	Lipids = 0.71%	Lipids = 0.68%	Lipids = 0.48%	Lipids =0.69%	Lipids = 0.56%	Lipids = 0.72%	Lipids = 0.61%	Lipids = 0.74%	Lipids = 0.57%	Lipids = 0.70%	Lipids =0.52%	Lipids = 0.76%	Lipids = 0.50%
ACENAPHTHENE	UG/KG	ND	ND	ND	ND	ND	74	---	---	---	---	---	---	---	---
ACENAPHTHYLENE	UG/KG	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---
ANTHRACENE	UG/KG	ND	ND	ND	ND	ND	34.3	---	---	---	---	---	---	---	---
BENZO[A]ANTHRACENE	UG/KG	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---
BENZO[A]PYRENE	UG/KG	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---
BENZO[B]FLUORANTHENE	UG/KG	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---
BENZO[G,H,I]PERYLENE	UG/KG	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---
BENZO[K]FLUORANTHENE	UG/KG	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---
CHRYSENE	UG/KG	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---
DIBENZ(A,H)ANTHRACENE	UG/KG	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---
FLUORANTHENE	UG/KG	ND	ND	ND	ND	ND	80.5	---	---	---	---	---	---	---	---
FLUORENE	UG/KG	ND	ND	ND	ND	ND	60.3	---	---	---	---	---	---	---	---
INDENO[1,2,3-CD]PYRENE	UG/KG	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---
NAPHTHALENE	UG/KG	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---
PHENANTHRENE	UG/KG	ND	ND	ND	ND	ND	142	---	---	---	---	---	---	---	---
PYRENE	UG/KG	ND	ND	ND	ND	ND	46.9	---	---	---	---	---	---	---	---
TOTAL PAHs (ND=1/2RL)	UG/KG	ND	ND	ND	ND	ND	1,040	---	---	---	---	---	---	---	---
TOTAL PAHs (ND=RL)	UG/KG	ND	ND	ND	ND	ND	1,660	---	---	---	---	---	---	---	---

NOTE: For pre-test and control tissues n = 3 and for all other tissue tests n = 5.

Nereis virens species used for worm tissue tests and *Macoma nasuta* used for clam tissue tests.

ND = not detected or was detected below the reporting limit in each of the tested tissue replicates.

analyte concentration is significantly higher than the Willoughby Bank reference site concentration (p>0.05)

analyte concentration is significantly higher than the Willoughby Bank reference site concentration (p>0.05) and the pre-test tissue concentration (p>0.05)

TABLE 23. MEAN PCB CONGENER CONCENTRATIONS (UG/KG) IN TISSUES
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

ANALYTE	UNITS	PRETEST		Willoughby Bank Reference	
		Worms	Clams	Worms	Clams
		Lipids = 0.75%	Lipids = 0.71%	Lipids = 0.68%	Lipids = 0.48%
PCB 8 (BZ)*	UG/KG	0.515	1.15	1.24	1.42
PCB 18 (BZ)*	UG/KG	0.29	0.162	ND	1.75
PCB 28 (BZ)*	UG/KG	0.246	0.31	ND	1.84
PCB 44 (BZ)*	UG/KG	ND	0.999	ND	ND
PCB 49 (BZ)	UG/KG	ND	ND	ND	ND
PCB 52 (BZ)*	UG/KG	ND	ND	ND	ND
PCB 66 (BZ)*	UG/KG	ND	ND	ND	ND
PCB 77 (BZ)	UG/KG	0.649	ND	ND	ND
PCB 87 (BZ)	UG/KG	ND	ND	ND	ND
PCB 101 (BZ)*	UG/KG	0.273	ND	1.24	ND
PCB 105 (BZ)*	UG/KG	ND	ND	ND	ND
PCB 118 (BZ)*	UG/KG	0.567	ND	ND	ND
PCB 126 (BZ)	UG/KG	ND	ND	ND	ND
PCB 128 (BZ)*	UG/KG	0.559	ND	ND	ND
PCB 138 (BZ)*	UG/KG	0.491	ND	0.288	ND
PCB 153 (BZ)*	UG/KG	1.55	ND	1.48	ND
PCB 156 (BZ)	UG/KG	ND	ND	ND	ND
PCB 169 (BZ)	UG/KG	ND	ND	ND	ND
PCB 170 (BZ)*	UG/KG	0.366	ND	0.706	ND
PCB 180 (BZ)*	UG/KG	0.441	ND	0.869	ND
PCB 183 (BZ)	UG/KG	ND	ND	ND	ND
PCB 184 (BZ)	UG/KG	ND	ND	ND	ND
PCB 187 (BZ)*	UG/KG	0.701	ND	0.951	ND
PCB 195 (BZ)*	UG/KG	ND	ND	ND	ND
PCB 206 (BZ)*	UG/KG	0.185	ND	0.734	ND
PCB 209 (BZ)*	UG/KG	ND	ND	ND	ND
TOTAL PCBs (ND=1/2RL)	UG/KG	19.5	23.6	25.5	37.3
TOTAL PCBs (ND=RL)	UG/KG	29.3	46.1	45.5	74

* PCB congeners used for Total PCB summation, as per Table 5-6 of the SERIM (USEPA/USACE 2008)

NOTE: For pre-test and control tissues n = 3 and for all other tissue tests n = 5.

Nereis virens species used for worm tissue tests and *Macoma nasuta* used for clam tissue tests.

ND = not detected or was detected below the reporting limit in each of the tested tissue replicates.

analyte concentration is significantly higher than the Willoughby Bank reference site concentration (p>0.05)

analyte concentration is significantly higher than the Willoughby Bank reference site concentration (p>0.05) and the pre-test tissue concentration (p>0.05)

Dredging Unit 5		Dredging Unit 4		Dredging Unit 3		Dredging Unit 2		Dredging Unit 1	
SC-01/02		SC-03/04		SC-05/06		SC-07/08		SC-09/10	
Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams
Lipids =0.69%	Lipids = 0.56%	Lipids = 0.72%	Lipids = 0.61%	Lipids = 0.74%	Lipids = 0.57%	Lipids = 0.70%	Lipids =0.52%	Lipids = 0.76%	Lipids = 0.50%
ND	1.07	---	---	---	---	---	---	---	---
ND	1.55	---	---	---	---	---	---	---	---
ND	ND	---	---	---	---	---	---	---	---
ND	ND	---	---	---	---	---	---	---	---
0.442	1.56	---	---	---	---	---	---	---	---
ND	ND	---	---	---	ND	---	---	---	---
ND	ND	---	---	---	---	---	---	---	---
0.408	1.13	---	---	---	---	---	---	---	---
ND	ND	---	---	---	---	---	---	---	---
0.525	0.517	---	---	---	---	---	---	---	---
ND	ND	---	---	---	---	---	---	---	---
ND	ND	---	---	---	---	---	---	---	---
1.2	ND	---	---	---	---	---	---	---	---
ND	ND	---	---	---	ND	---	---	---	---
0.52	ND	---	---	---	---	---	---	---	---
1.61	ND	---	---	---	---	---	---	---	---
ND	ND	---	---	---	---	---	---	---	---
ND	ND	---	---	---	---	---	---	---	---
0.43	ND	---	---	---	---	---	---	---	---
0.55	ND	---	---	---	---	---	---	---	---
ND	ND	---	---	---	ND	---	---	---	---
ND	ND	---	---	---	---	---	---	---	---
0.468	ND	---	---	---	---	---	---	---	---
ND	ND	---	---	---	---	---	---	---	---
0.931	ND	---	---	---	---	---	---	---	---
1	ND	---	---	---	---	---	---	---	---
24.6	30.1	---	---	---	---	---	---	---	---
40.6	58.9	---	---	---	---	---	---	---	---

TABLE 24. MEAN DIOXIN AND FURAN CONGENER CONCENTRATIONS (NG/KG) IN TISSUES
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

ANALYTE	UNITS	TEF*	PRETEST		Willoughby Bank Reference		Dredging Unit 5		Dredging Unit 4		Dredging Unit 3		Dredging Unit 2		Dredging Unit 1	
							SC-01/02		SC-03/04		SC-05/06		SC-07/08		SC-09/10	
			Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams
			Lipids = 0.75%	Lipids = 0.71%	Lipids = 0.68%	Lipids = 0.48%	Lipids = 0.69%	Lipids = 0.56%	Lipids = 0.72%	Lipids = 0.61%	Lipids = 0.74%	Lipids = 0.57%	Lipids = 0.70%	Lipids = 0.52%	Lipids = 0.76%	Lipids = 0.50%
2,3,7,8-TCDD	NG/KG	1	ND	ND	ND	1.4	ND	ND	---	---	---	---	ND	ND	---	---
1,2,3,7,8-PECDD	NG/KG	1	ND	ND	ND	6.99	4.52	ND	---	---	---	---	5.96	8.53	---	---
1,2,3,4,7,8-HXCDD	NG/KG	0.1	ND	ND	ND	6.17	ND	ND	---	---	---	---	ND	8.17	---	---
1,2,3,6,7,8-HXCDD	NG/KG	0.1	4.73	ND	ND	0.12	5.95	ND	---	---	---	---	ND	8.17	---	---
1,2,3,7,8,9-HXCDD	NG/KG	0.1	ND	ND	ND	0.135	ND	ND	---	---	---	---	ND	ND	---	---
1,2,3,4,6,7,8-HPCDD	NG/KG	0.01	3.21	4.97	1.41	1.9	2.21	2.54	---	---	---	---	1.5	2.48	---	---
OCDD	NG/KG	0.0003	11.7	1.31	12.2	28.3	24.5	64.6	---	---	---	---	16.8	64.3	---	---
2,3,7,8-TCDF	NG/KG	0.1	1.08	ND	1.3	0.551	1	ND	---	---	---	---	0.761	1.75	---	---
1,2,3,7,8-PECDF	NG/KG	0.03	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	8.52	---	---
2,3,4,7,8-PECDF	NG/KG	0.3	ND	ND	ND	8.82	5.8	ND	---	---	---	---	5.97	6.24	---	---
1,2,3,4,7,8-HXCDF	NG/KG	0.1	ND	ND	ND	4.35	0.158	ND	---	---	---	---	4.55	6.4	---	---
1,2,3,6,7,8-HXCDF	NG/KG	0.1	2.28	ND	0.677	4.77	0.738	7.79	---	---	---	---	0.681	6.46	---	---
2,3,4,6,7,8-HXCDF	NG/KG	0.1	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	8.16	---	---
1,2,3,7,8,9-HXCDF	NG/KG	0.1	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	6.38	---	---
1,2,3,4,6,7,8-HPCDF	NG/KG	0.01	2.44	ND	3.32	4.78	0.273	4.05	---	---	---	---	3.19	8.6	---	---
1,2,3,4,7,8,9-HPCDF	NG/KG	0.01	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	ND	---	---
OCDF	NG/KG	0.0003	4.68	ND	3.91	7.73	5.9	10.9	---	---	---	---	5.99	8.52	---	---
DIOXIN TEQ (ND=1/2RL)	NG/KG	---	8.31	9.24	9.47	8.61	6.62	11.6	---	---	---	---	7.58	9.94	---	---
DIOXIN TEQ (ND=RL)	NG/KG	---	16.6	18.5	18.9	17.2	13.1	23.2	---	---	---	---	15.1	19.9	---	---

*Source : Van den Berg, M, et al. 2006. *The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds. Toxicological Sciences* 93(2):223-241.

NOTE: For pre-test and control tissues n = 3 and for all other tissue tests n = 5.

Nereis virens species used for worm tissue tests and *Macoma nasuta* used for clam tissue tests.

ND = not detected or was detected below the reporting limit in each of the tested tissue replicates.

TEF = toxicity equivalency factor

TEQ = toxicity equivalency quotient

analyte concentration is significantly higher than the Willoughby Bank reference site concentration (p>0.05)

analyte concentration is significantly higher than the Willoughby Bank reference site concentration (p>0.05) and the pre-test tissue concentration (p>0.05)

TABLE 25. MEAN PESTICIDE CONCENTRATIONS (UG/KG) IN TISSUES
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA

ANALYTE	UNITS	PRETEST		Willoughby Bank Reference		Dredging Unit 5		Dredging Unit 4		Dredging Unit 3		Dredging Unit 2		Dredging Unit 1	
		Worms	Clams	Worms	Clams	SC-01/02		SC 03/04		SC-05/06		SC-07/08		SC-09/10	
		Lipids = 0.75%	Lipids = 0.71%	Lipids = 0.68%	Lipids = 0.48%	Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams
		Lipids = 0.75%	Lipids = 0.71%	Lipids = 0.68%	Lipids = 0.48%	Lipids = 0.69%	Lipids = 0.56%	Lipids = 0.72%	Lipids = 0.61%	Lipids = 0.74%	Lipids = 0.57%	Lipids = 0.70%	Lipids = 0.52%	Lipids = 0.76%	Lipids = 0.50%
2,4'-DDD	UG/KG	0.371	ND	ND	ND	0.282	0.379	ND	0.39	0.501	0.643	---	---	---	---
2,4'-DDE	UG/KG	ND	0.161	ND	ND	ND	0.559	ND	0.465	ND	0.596	---	---	---	---
2,4'-DDT	UG/KG	ND	ND	ND	0.566	ND	ND	ND	ND	ND	ND	---	---	---	---
4,4'-DDD	UG/KG	0.403	ND	0.518	ND	0.198	0.611	0.194	0.566	0.206	0.502	---	---	---	---
4,4'-DDE	UG/KG	ND	0.529	ND	0.477	ND	0.347	ND	0.343	ND	0.464	---	---	---	---
4,4'-DDT	UG/KG	ND	0.576	0.535	ND	0.593	0.666	0.53	0.613	0.551	ND	---	---	---	---

NOTE: For pre-test and control tissues n = 3 and for all other tissue tests n = 5.

Nereis virens species used for worm tissue tests and *Macoma nasuta* used for clam tissue tests.

ND = not detected or was detected below the reporting limit in each of the tested tissue replicates.

analyte concentration is significantly higher than the Willoughby Bank reference site concentration (p>0.05)

analyte concentration is significantly higher than the Willoughby Bank reference site concentration (p>0.05) and the pre-test tissue concentration (p>0.05)

**TABLE 26. COMPARISON OF UPPER 95% CONFIDENCE LEVELS OF THE MEAN (UCLM) TISSUE CONCENTRATION TO U.S. FOOD AND DRUG ADMINISTRATION (USFDA) ACTION/GUIDANCE/TOLERANCE LEVELS
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA**

ANALYTE(c)	UNITS	USFDA Action/Guidance/Tolerance Levels ^(a)		Dredging Unit 5		Dredging Unit 4		Dredging Unit 3		Dredging Unit 2		Dredging Unit 1	
				SC-01/02		SC-03/04		SC-05/06		SC-07/08		SC-09/10	
		Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams
ARSENIC	MG/KG	76	86	1.96	2.65	1.96	2.59	1.89	2.82	1.98	2.73	1.81	2.68
CADMIUM	MG/KG	4	3	0.02	0.03	0.03	0.03	0.02	0.02	0.02	0.03	0.02	0.07
CHROMIUM	MG/KG	12	13	0.42	0.13	0.76	0.22	0.19	0.42	0.24	0.32	0.71	0.36
LEAD	MG/KG	1.5	1.7	0.21	0.19	0.46	0.19	0.10	0.22	0.11	0.23	0.33	0.21
MERCURY	MG/KG	1	1	0.02	ND	0.03	ND	0.01	0.02	0.03	0.03	0.04	0.02
NICKEL	MG/KG	70	80	0.38	0.42	0.52	0.48	0.23	0.63	0.26	0.60	0.47	0.58
Total PCBs	UG/KG	2,000	2,000	44.30	69.48	NT	NT	NT	NT	NT	NT	NT	NT
4,4'-DDT	UG/KG	5,000	5,000	0.66	0.98	0.71	0.77	0.64	ND	NT	NT	NT	NT

NT= not tested

(a) *Source:* USFDA 2001. Fish and Fishery Products Hazards and Controls Guidance. Third Edition. U.S. Food and Drug Administration, Center for Food Safety and Applied Nutrition. June.

(c) Values provided only for chemical constituents that were tested in this program.

ND = not detected or was detected below the reporting limit in each of the tested tissue replicates.

Exceeds USFDA Action/Guidance/Tolerance Levels

**TABLE 27. COMPARISON OF UPPER 95% CONFIDENCE LEVELS OF THE MEAN TISSUE CONCENTRATION TO USEPA REGION 4 BACKGROUND CONCENTRATIONS
SKIFFES CREEK, NEWPORT NEWS, VIRGINIA**

ANALYTE(c)	UNITS	USEPA Region 4 Background Concentration - South Atlantic Bight ^(b)		Dredging Unit 5		Dredging Unit 4		Dredging Unit 3		Dredging Unit 2		Dredging Unit 1	
				SC-01/02		SC-03/04		SC-05/06		SC-07/08		SC-09/10	
		Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams	Worms	Clams
NICKEL	MG/KG	1.6-3.5	0.9-3.7	--	--	--	--	--	0.63	--	--	--	0.58
OCDD	NG/KG	--	--	31.52	76.20	--	--	--	--	--	80.11	--	--

(b) *Source:* Southeast Regional Implementation Manual (SERIM), USACE/USEPA 2008

(c) Values provided only for chemical constituents in tissue that were tested and exceeded reference and pre-test tissue concentrations in this program.

ND = not detected or was detected below the reporting limit in each of the tested tissue replicates.

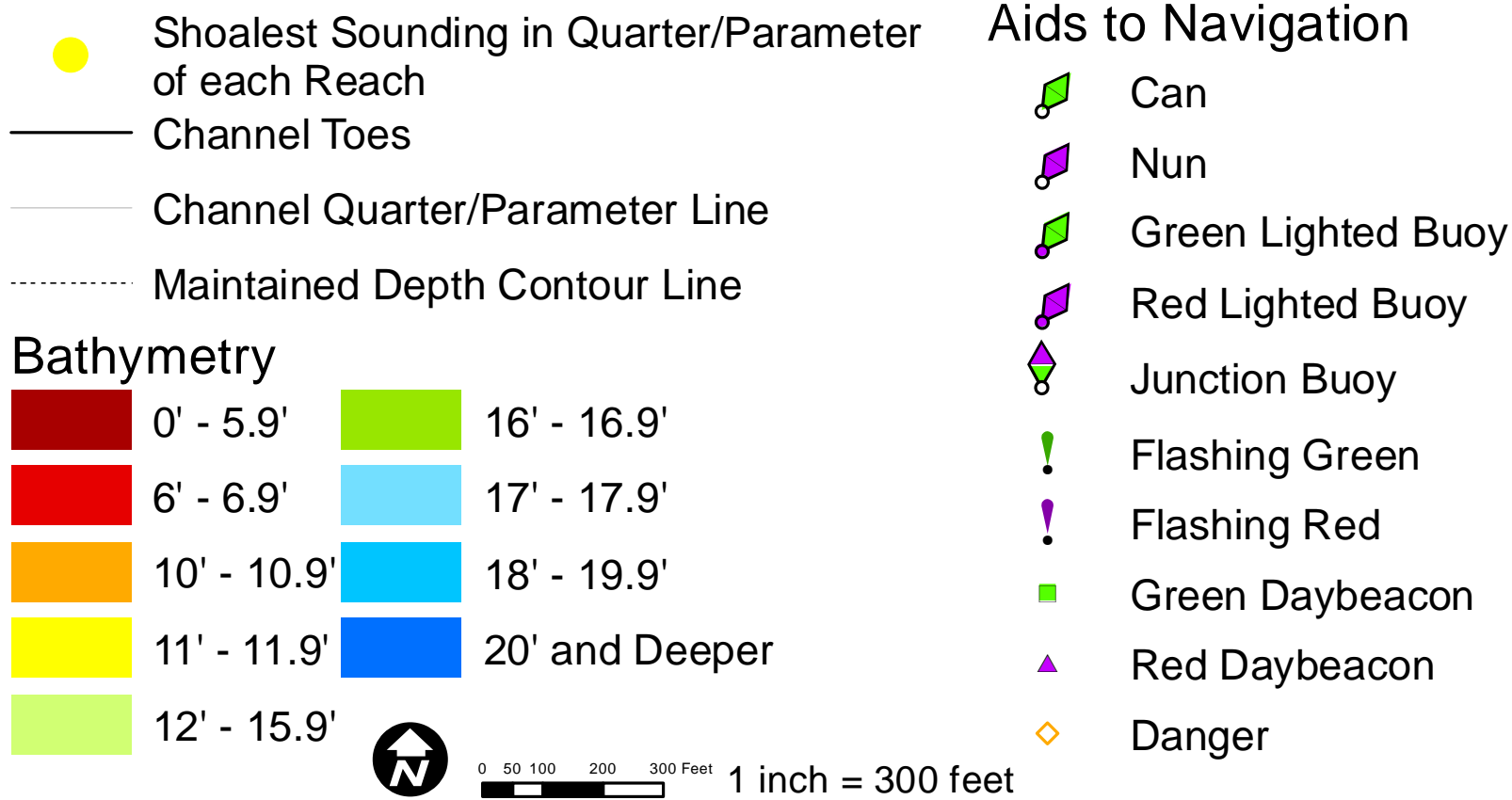
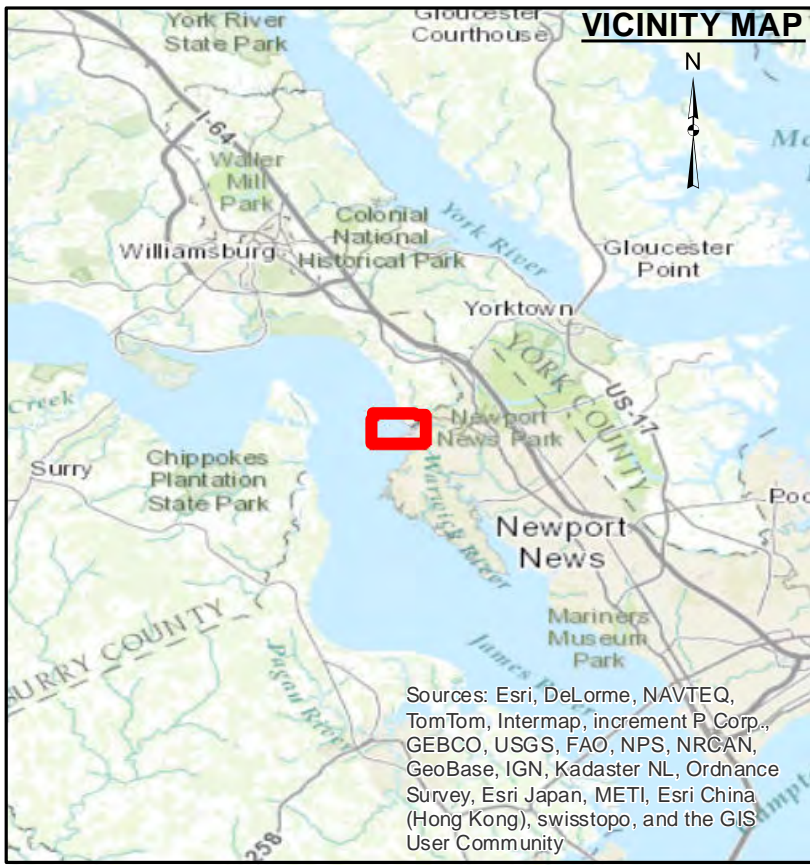
Exceeds USEPA Region 4 Background Concentration - South Atlantic Bight

**MARINE PROTECTION, RESEARCH, AND
SANCTUARIES ACT (MPRSA) SECTION 103
EVALUATION:**

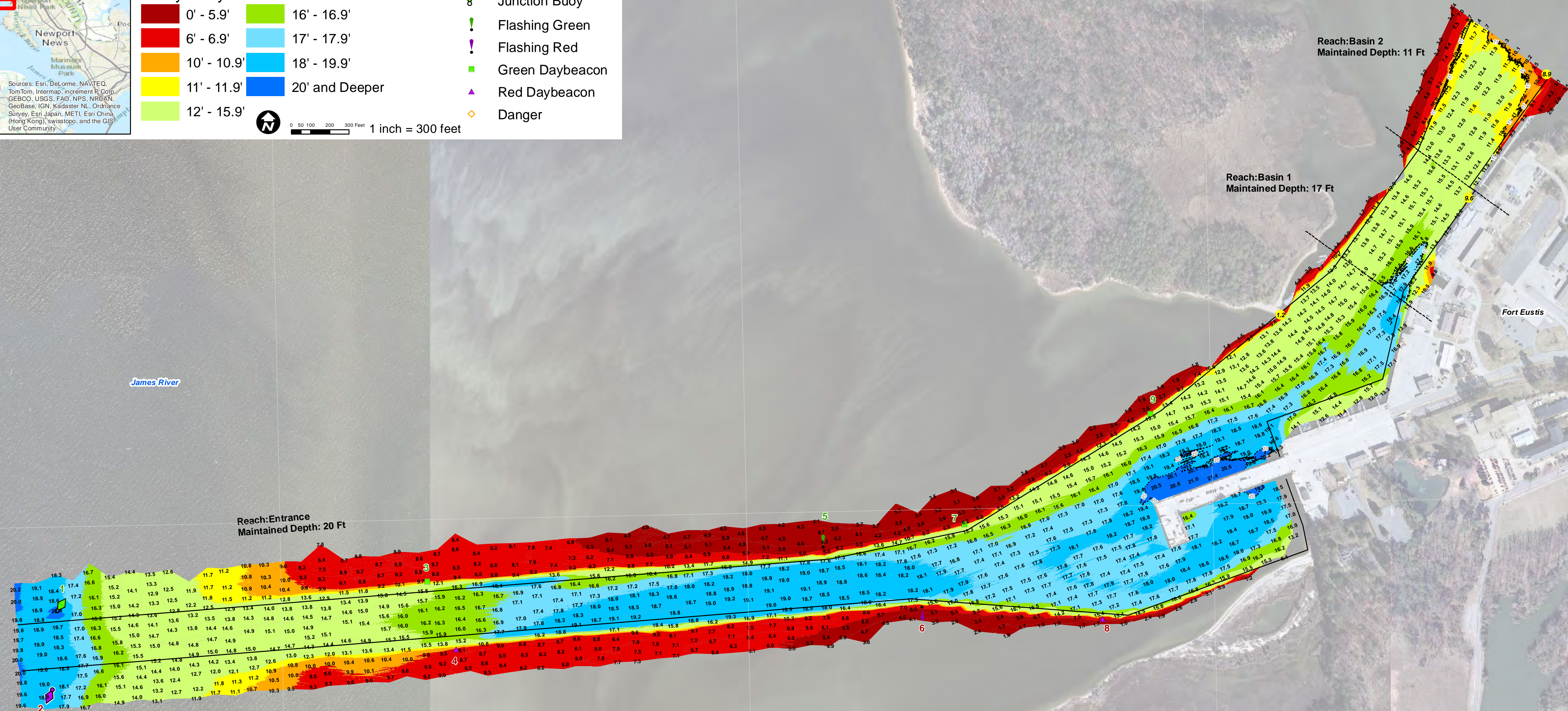
**Skiffes Creek Channel
Newport News, Virginia**

Attachment I

BATHYMETRIC SURVEY MAP



DRAFT



US Army Corps of Engineers
Norfolk District

NOTES:

1. PROJECT: SKIFFES CREEK NAVIGATION CHANNEL SERVES THE THIRD PORT LOCATED AT JOINT BASE LANGLEY-EUSTIS. THE CHANNEL IS 1.890 FOOT LONG AREA MAINTAINED TO A DEPTH OF 17 FEET, AND A 1.615 FOOT LONG AREA MAINTAINED TO A DEPTH OF 11 FEET. ALL AREAS ARE VARIABLE WIDTH.
2. THE INFORMATION DERIVED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATE(S) INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. SOUNDINGS: SHOWN IN FEET CENTERED ON POINT OF SHOALEST DEPTH IN 50 FT RADIUS GENERATED FROM HYDRO SURVEY DATA.
4. BACKGROUND: VGIN IMAGERY 2008.
5. AIDS TO NAVIGATION LOCATED WITH SURVEY VESSEL 4'-3 METERS ON SURVEY DATE SHOWN ON MAP.
6. SURVEY XYZ (XYZ) AND METADATA: MET FILE NAME: SK_01_SKV_20140328_CS

VERTICAL REFERENCE DATUM: NOS MLLW TIDAL EPOCH: 1983-2011 HORIZONTAL ACCURACY: 1:50,000 COORDINATE SYSTEM: NAD 83 PROJECTION: UTM UNIT: METERS BIN SIZE: 10 M SYSTEM METHOD: CDD C/V3 SINGLE-BEAM	STATE PLANE NAD 83 UTM US SURVEY FEET 4' - 10 FEET HORIZONTAL CONTROL MONUMENTS: USCG DGPS
--	---

GAUGE INFORMATION - VERTICAL CONTROL MONUMENTS	
MONUMENT	USACE PORT, 2001
THIRD POINT AT FORT EUSTIS (Direct)	
GAUGE	
RANGE	2.4'
TIDE	
MLLW	7.79
AREA	Enrge Project

SKIFFES CREEK

PROJECT CONDITION SURVEY

28 March 2014

SURVEY DATES:
March 27 & 28, 2014

FILE NO: SKF.2014.03.27.CS

SIGNATURES AFFIXED BELOW INDICATE OFFICIAL APPROVAL OF ALL DRAWINGS IN THIS SET

REVIEWED:	APPROVED:
CHIEF, NAVIGATION SUPPORT AND SURVEY SECTION	CHIEF, OPERATIONS BRANCH
REVIEWED:	APPROVED:
CHIEF, DESIGN SECTION	CHIEF, WATER RESOURCES DIVISION

SHEET
1 of 1

**MARINE PROTECTION, RESEARCH, AND
SANCTUARIES ACT (MPRSA) SECTION 103
EVALUATION:**

**Skiffes Creek Channel
Newport News, Virginia**

Attachment II

STFATE MODEL RESULTS

SKIFFES CREEK

STFATE Compliance Summary and Model Inputs
SC-01/02

Summary of STFATE Modeling for Placement of Dredge Material from Skiffes Creek DU 01/02 into the Norfolk ODMDS.

	1-hr		4-hrs		Tier II WQ Violation?	Tier III WQ Violation?
Placement Volume (cuy)	Dilution Factor	Feet Traveled	Dilution Factor	Feet Traveled		
3,000	21	1,140	632	4,173	No	No
4,000	18	1,140	502	4,173	No	No
4,600	16	1,140	449	4,173	No	No
4,700	16	1,140	441	4,173	No	Yes
5,000	15	1,140	421	4,173	No	Yes

STFATE Model Inputs: Skiffs Creek DU 01/02

INPUT PARAMETER	UNITS	VALUE
SITE DESCRIPTION		
Disposal Site Name		Norfolk ODMDS
Number of grid points (L-R, +z dir)		96
Number of grid points (T-B, +x dir)		96
Grid spacing (Left to Right) Z-Axis	ft	100
Grid spacing (Top to Bottom) X-Axis	ft	100
Constant water depth	ft	65
Bottom roughness	ft	0.005
Bottom slope (x-dir)	deg	0
Bottom slope (z-dir)	deg	0.001
Number of points in density profile		2
	0 ft g/cc	1.0237
	30 g/cc	1.0237
	65 g/cc	1.0250

AMBIENT VELOCITY

Type of velocity profile (≥ 0.1 fps)		Depth-Averaged
Logarithmic Profile		No
Depth ft	Velocity X (fps)	Velocity Z (fps)
65	0.232	0.232

STFATE Model Inputs: Skiffs Creek DU 01/02

INPUT PARAMETER

UNITS

VALUE

DISPOSAL OPERATION

Disposal point top of grid (X-Axis)	ft	4,800
Disposal point left edge of grid (Z-Axis)	ft	4,800
Dumpint Over Depression		No
Bottom depression length x-direction	ft	0
Bottom depression length z-direction	ft	0
Bottom depression average depth	ft	0
Location of Disposal Site		
Upper Left Corner Distance from Top Edge (X)	ft	500
Upper Left Corner Distance from Left Edge (Z)	ft	500
Lower Right Corner Distance from Top Edge (X)	ft	8,600
Lower Right Corner Distance from Left Edge (Z)	ft	8,600
Length of vessel bin	ft	165
Width of vessel bin	ft	45
Distance Between Bins	ft	5
Predisposal draft	ft	20
Postdisposal draft	ft	10
Time to empty vessel	s	90
Number of Bins that Open Simultaneously	s	1
Number of Discrete Openings of Sets of Bins	s	1
Vessel velocity in x-direction	ft/s	1.7
Vessel velocity in z-direction	ft/s	0
Number of layers		1
Volume of each layer	yd ³	4,000

COEFFICIENTS

Settling coef (BETA)		0.000
Apparent mass coefficient (CM)		1.000
Drag coefficient (CD)		0.500
Form drag collapse cloud (CDRAG)		1.000
Skin friction collapse cloud (CFRIC)		0.010
Drag ellipse wedge (CD3)		0.100
Drag plate (CD4)		1.000
Friction between cloud and bottom (FRICTN)		0.010
4/3 Law horizontal diffusion coefficient (ALAMDA)		0.001
Unstratified vertical diffusion coefficient (AKY0)		0.025
Cloud/ambient density gradient ratio (GAMA)		0.250
Turbulent thermal entrainment (ALPHA0)		0.235
Entrainment collapse (ALPHAC)		0.100
Stripping factor (CSTRIP)		0.003

INPUT, EXECUTION & OUTPUT KEYS

Process to simulate		Disp. from Split-Hull Barge/Scow
Duration of simulation	s	14,400
Long Term Time Step	s	600

STFATE Model Inputs: Skiffs Creek DU 01/02

INPUT PARAMETER	UNITS	VALUE
Convective descent output		
Collapse phase output option		
Number of print times for diffusion		
Number of depths for output		4
Depths for output	ft	0, 15, 30, 45, 65

DREDGE MATERIAL

Location		Skiffs Creek
Bulking Factor		1.0 (sand/gravel), 1.0 (silt/clay)
Site Water Density	g/cc	1.0053

Water Quality - Tier II

Contaminant		Ammonia
Acute Water Quality Criteria at Edge of Mixing Zone (C_{wq})	mg/L	4.91
Predicted initial concentration in fluid (C_s)	mg/L	19
Background concentration (C_{ds})	mg/L	0.12
Dilution Required (D_r)		2.94

Toxicity - Tier III

		Lowest
EC50	% Elutriate	22.5

SKIFFES CREEK

**Tier 2 Water Quality Criteria LPC
SC-01/02**

Limiting Constituent = Ammonia
Placement Volume = 4,600 cubic yards

TIER 2 STFATE MODEL RESULTS SUMMARY: Skiffes Creek DU 01/02
Norfolk Ocean Disposal Site, Norfolk, VA

Scenario: Skiffes Creek DU 01/02		Placement Volume: 4,600	
Tier II - Water Quality Criteria			
Analyte: Ammonia		Water Quality Criterion: 4.91	
		Elutriate Concentration (C _s): 19	
		Background concentration (C _{ds}): 0.12	
		Dilution Required: 2.9	
		Dilution Factor Achieved: 447	
WQC Initial Mixing Computation Results: 4-Hour Criterion			
Time (hours)	Depth (ft)	Maximum Contaminant Concentration (C _{max}) on Grid	Dilution on Grid (D _{a-wq})
4.0	0	1.20E-01	3.93E+24
4.0	15	1.20E-01	1.99E+14
4.0	30	1.20E-01	1.26E+07
4.0	45	1.29E-01	2.00E+03
4.0	65	1.26E-01	3.31E+03
4.0	54.3	1.62E-01	4.47E+02
WQC Initial Mixing Computation Results: Disposal Site Boundary Criterion			
Depth (ft)	Time Corresponding to C _{max} Outside Disposal Site (hours)	Maximum Contaminant Concentration (C _{max}) Outside Disposal Site (percent)	Dilution Outside Disposal Site (D _{a-wq})
0	NA	NA	NA
15	NA	NA	NA
30	NA	NA	NA
45	NA	NA	NA
65	NA	NA	NA
54.3	NA	NA	NA
D _{a-wq} = (C _s - C _{max}) / (C _{max} - C _{ds}); where C _s = elutriate concentration and C _{ds} = background concentration			
Shaded row = depth of maximum concentration			
1. Concentration above background (C _{max} - C _{ds}) = 0.			

SKIFFES CREEK

Tier 3 Water Column Toxicity LPC
SC-01/02

$EC_{50} = 22.5$ Percent Elutriate
Placement Volume = 4,600 cubic yards

TIER 3 STFATE MODEL RESULTS SUMMARY: Skiffes Creek DU 01/02
Norfolk Ocean Disposal Site, Norfolk, VA

Scenario: Skiffes Creek DU 01/02		Placement Volume (cy): 4,600	
Tier III - Water Column Toxicity		LPC: 0.225	
Species: <i>Mytilis</i>		Dilution Required: 443	
		Dilution Achieved: 449	
Toxicity Initial Mixing Computation Results: 4-Hour Criterion			
Time (hours)	Depth (ft)	Maximum Contaminant Concentration (C _{tox}) on Grid	Dilution on Grid (D _{a-tox})
4.0	0	2.52E-23	3.97E+24
4.0	15	4.98E-13	2.01E+14
4.0	30	7.87E-06	1.27E+07
4.0	45	4.97E-02	2.01E+03
4.0	65	3.00E-02	3.33E+03
4.0	54.3	2.22E-01	4.49E+02
Toxicity Initial Mixing Computation Results: Disposal Site Boundary Criterion			
Depth (ft)	Time Corresponding to C _{tox} Outside Disposal Site (hours)	Maximum Contaminant Concentration (C _{tox}) Outside Disposal Site (percent)	Dilution Outside Disposal Site (D _{a-tox})
0	NA	NA	NA
15	NA	NA	NA
30	NA	NA	NA
45	NA	NA	NA
65	NA	NA	NA
54.3	NA	NA	NA
D _{a-tox} = (100 - C _{tox}) / C _{tox}			
Shaded row = depth of maximum concentration			
1. Concentration outside disposal site (C _{tox} - C _{ds}) = 0.			

SKIFFES CREEK

STFATE Compliance Summary and Model Inputs
SC-03/04

Summary of STFATE Modeling for Placement of Dredge Material from Skiffes Creek DU 03/04 into the Norfolk ODMDS.

	1-hr		4-hrs		Tier II WQ Violation?	Tier III WQ Violation?
Placement Volume (cuy)	Dilution Factor	Feet Traveled	Dilution Factor	Feet Traveled		
3,000	22	1,140	648	4,173	No	No
4,000	18	1,140	514	4,173	No	No
4,900	16	1,140	438	4,173	No	No
5,000	16	1,140	432	4,173	No	Yes

STFATE Model Inputs: Skiffs Creek DU 03/04

INPUT PARAMETER	UNITS	VALUE
SITE DESCRIPTION		
Disposal Site Name		Norfolk ODMDS
Number of grid points (L-R, +z dir)		96
Number of grid points (T-B, +x dir)		96
Grid spacing (Left to Right) Z-Axis	ft	100
Grid spacing (Top to Bottom) X-Axis	ft	100
Constant water depth	ft	65
Bottom roughness	ft	0.005
Bottom slope (x-dir)	deg	0
Bottom slope (z-dir)	deg	0.001
Number of points in density profile		2
	0 ft g/cc	1.0237
	30 g/cc	1.0237
	65 g/cc	1.0250

AMBIENT VELOCITY

Type of velocity profile (≥ 0.1 fps)		Depth-Averaged
Logarithmic Profile		No
Depth ft	Velocity X (fps)	Velocity Z (fps)
65	0.232	0.232

STFATE Model Inputs: Skiffs Creek DU 03/04

INPUT PARAMETER

UNITS

VALUE

DISPOSAL OPERATION

Disposal point top of grid (X-Axis)	ft	4,800
Disposal point left edge of grid (Z-Axis)	ft	4,800
Dumpint Over Depression		No
Bottom depression length x-direction	ft	0
Bottom depression length z-direction	ft	0
Bottom depression average depth	ft	0
Location of Disposal Site		
Upper Left Corner Distance from Top Edge (X)	ft	500
Upper Left Corner Distance from Left Edge (Z)	ft	500
Lower Right Corner Distance from Top Edge (X)	ft	8,600
Lower Right Corner Distance from Left Edge (Z)	ft	8,600
Length of vessel bin	ft	165
Width of vessel bin	ft	45
Distance Between Bins	ft	5
Predisposal draft	ft	20
Postdisposal draft	ft	10
Time to empty vessel	s	90
Number of Bins that Open Simultaneously	s	1
Number of Discrete Openings of Sets of Bins	s	1
Vessel velocity in x-direction	ft/s	1.7
Vessel velocity in z-direction	ft/s	0
Number of layers		1
Volume of each layer	yd ³	4,000

COEFFICIENTS

Settling coef (BETA)		0.000
Apparent mass coefficient (CM)		1.000
Drag coefficient (CD)		0.500
Form drag collapse cloud (CDRAG)		1.000
Skin friction collapse cloud (CFRIC)		0.010
Drag ellipse wedge (CD3)		0.100
Drag plate (CD4)		1.000
Friction between cloud and bottom (FRICTN)		0.010
4/3 Law horizontal diffusion coefficient (ALAMDA)		0.001
Unstratified vertical diffusion coefficient (AKY0)		0.025
Cloud/ambient density gradient ratio (GAMA)		0.250
Turbulent thermal entrainment (ALPHA0)		0.235
Entrainment collapse (ALPHAC)		0.100
Stripping factor (CSTRIP)		0.003

INPUT, EXECUTION & OUTPUT KEYS

Process to simulate		Disp. from Split-Hull Barge/Scow
Duration of simulation	s	14,400
Long Term Time Step	s	600

STFATE Model Inputs: Skiffs Creek DU 03/04

INPUT PARAMETER	UNITS	VALUE
Convective descent output		
Collapse phase output option		
Number of print times for diffusion		
Number of depths for output		4
Depths for output	ft	0, 15, 30, 45, 65

DREDGE MATERIAL

Location		Skiffs Creek
Bulking Factor		1.0 (sand/gravel), 1.0 (silt/clay)
Site Water Density	g/cc	1.0053

Water Quality - Tier II

Contaminant		Ammonia
Acute Water Quality Criteria at Edge of Mixing Zone (C_{wq})	mg/L	4.91
Predicted initial concentration in fluid (C_s)	mg/L	16
Background concentration (C_{ds})	mg/L	0.12
Dilution Required (D_r)		2.32

Toxicity - Tier III

		Lowest
EC50	% Elutriate	23.1

SKIFFES CREEK

Tier 2 Water Quality Criteria LPC
SC-03/04

Limiting Constituent = Ammonia
Placement Volume = 4,900 cubic yards

TIER 2 STFATE MODEL RESULTS SUMMARY: Skiffes Creek DU 03/04
Norfolk Ocean Disposal Site, Norfolk, VA

Scenario: Skiffes Creek DU 03/04		Placement Volume: 4,900	
Tier II - Water Quality Criteria			
Analyte: Ammonia		Water Quality Criterion: 4.91	
		Elutriate Concentration (C _s): 16	
		Background concentration (C _{ds}): 0.12	
		Dilution Required: 2.3	
		Dilution Factor Achieved: 435	
WQC Initial Mixing Computation Results: 4-Hour Criterion			
Time (hours)	Depth (ft)	Maximum Contaminant Concentration (C _{max}) on Grid	Dilution on Grid (D _{a-wq})
4.0	0	1.20E-01	8.77E+23
4.0	15	1.20E-01	8.54E+13
4.0	30	1.20E-01	8.63E+06
4.0	45	1.29E-01	1.80E+03
4.0	65	1.25E-01	3.22E+03
4.0	54.1	1.56E-01	4.35E+02
WQC Initial Mixing Computation Results: Disposal Site Boundary Criterion			
Depth (ft)	Time Corresponding to C _{max} Outside Disposal Site (hours)	Maximum Contaminant Concentration (C _{max}) Outside Disposal Site (percent)	Dilution Outside Disposal Site (D _{a-wq})
0	NA	NA	NA
15	NA	NA	NA
30	NA	NA	NA
45	NA	NA	NA
65	NA	NA	NA
54.1	NA	NA	NA
D _{a-wq} = (C _s - C _{max}) / (C _{max} - C _{ds}); where C _s = elutriate concentration and C _{ds} = background concentration			
Shaded row = depth of maximum concentration			
1. Concentration above background (C _{max} - C _{ds}) = 0.			

SKIFFES CREEK

Tier 3 Water Column Toxicity LPC
SC-03/04

$EC_{50} = 23.1$ Percent Elutriate
Placement Volume = 4,900 cubic yards

TIER 3 STFATE MODEL RESULTS SUMMARY: Skiffes Creek DU 03/04
Norfolk Ocean Disposal Site, Norfolk, VA

Scenario: Skiffes Creek DU 03/04		Placement Volume (cy): 4,900	
Tier III - Water Column Toxicity		LPC: 0.231	
Species: <i>Mytilis</i>		Dilution Required: 432	
		Dilution Achieved: 438	
Toxicity Initial Mixing Computation Results: 4-Hour Criterion			
Time (hours)	Depth (ft)	Maximum Contaminant Concentration (C _{tox}) on Grid	Dilution on Grid (D _{a-tox})
4.0	0	1.13E-22	8.85E+23
4.0	15	1.16E-12	8.62E+13
4.0	30	1.15E-05	8.70E+06
4.0	45	5.51E-02	1.81E+03
4.0	65	3.08E-02	3.25E+03
4.0	54.1	2.28E-01	4.38E+02
Toxicity Initial Mixing Computation Results: Disposal Site Boundary Criterion			
Depth (ft)	Time Corresponding to C _{tox} Outside Disposal Site (hours)	Maximum Contaminant Concentration (C _{tox}) Outside Disposal Site (percent)	Dilution Outside Disposal Site (D _{a-tox})
0	NA	NA	NA
15	NA	NA	NA
30	NA	NA	NA
45	NA	NA	NA
65	NA	NA	NA
54.1	NA	NA	NA
D _{a-tox} = (100 - C _{tox}) / C _{tox}			
Shaded row = depth of maximum concentration			
1. Concentration outside disposal site (C _{tox} - C _{ds}) = 0.			

SKIFFES CREEK

STFATE Compliance Summary and Model Inputs
LANG-05/06

Summary of STFATE Modeling for Placement of Dredge Material from Skiffes Creek DU 05/06 into the Norfolk ODMDS.

Placement Volume (cuy)	1-hr		4-hrs		Tier II WQ Violation?	Tier III WQ Violation?
	Dilution Factor	Feet Traveled	Dilution Factor	Feet Traveled		
3,000	24	1,140	703	4,173	No	No
4,000	20	1,140	558	4,173	No	No
5,000	17	1,140	468	4,173	No	No
6,000	16	1,140	407	4,173	No	No
6,500	15	1,140	382	4,173	No	No
6,600	15	1,140	378	4,173	No	Yes
7,000	14	1,140	361	4,173	No	Yes

STFATE Model Inputs: Skiffs Creek DU 05/06

INPUT PARAMETER	UNITS	VALUE
SITE DESCRIPTION		
Disposal Site Name		Norfolk ODMDS
Number of grid points (L-R, +z dir)		96
Number of grid points (T-B, +x dir)		96
Grid spacing (Left to Right) Z-Axis	ft	100
Grid spacing (Top to Bottom) X-Axis	ft	100
Constant water depth	ft	65
Bottom roughness	ft	0.005
Bottom slope (x-dir)	deg	0
Bottom slope (z-dir)	deg	0.001
Number of points in density profile		2
	0 ft g/cc	1.0237
	30 g/cc	1.0237
	65 g/cc	1.0250

AMBIENT VELOCITY

Type of velocity profile (≥ 0.1 fps)		Depth-Averaged
Logarithmic Profile		No
Depth ft	Velocity X (fps)	Velocity Z (fps)
65	0.232	0.232

STFATE Model Inputs: Skiffs Creek DU 05/06

INPUT PARAMETER

UNITS

VALUE

DISPOSAL OPERATION

Disposal point top of grid (X-Axis)	ft	4,800
Disposal point left edge of grid (Z-Axis)	ft	4,800
Dumpint Over Depression		No
Bottom depression length x-direction	ft	0
Bottom depression length z-direction	ft	0
Bottom depression average depth	ft	0
Location of Disposal Site		
Upper Left Corner Distance from Top Edge (X)	ft	500
Upper Left Corner Distance from Left Edge (Z)	ft	500
Lower Right Corner Distance from Top Edge (X)	ft	8,600
Lower Right Corner Distance from Left Edge (Z)	ft	8,600
Length of vessel bin	ft	165
Width of vessel bin	ft	45
Distance Between Bins	ft	5
Predisposal draft	ft	20
Postdisposal draft	ft	10
Time to empty vessel	s	90
Number of Bins that Open Simultaneously	s	1
Number of Discrete Openings of Sets of Bins	s	1
Vessel velocity in x-direction	ft/s	1.7
Vessel velocity in z-direction	ft/s	0
Number of layers		1
Volume of each layer	yd ³	4,000

COEFFICIENTS

Settling coef (BETA)		0.000
Apparent mass coefficient (CM)		1.000
Drag coefficient (CD)		0.500
Form drag collapse cloud (CDRAG)		1.000
Skin friction collapse cloud (CFRIC)		0.010
Drag ellipse wedge (CD3)		0.100
Drag plate (CD4)		1.000
Friction between cloud and bottom (FRICTN)		0.010
4/3 Law horizontal diffusion coefficient (ALAMDA)		0.001
Unstratified vertical diffusion coefficient (AKY0)		0.025
Cloud/ambient density gradient ratio (GAMA)		0.250
Turbulent thermal entrainment (ALPHA0)		0.235
Entrainment collapse (ALPHAC)		0.100
Stripping factor (CSTRIP)		0.003

INPUT, EXECUTION & OUTPUT KEYS

Process to simulate		Disp. from Split-Hull Barge/Scow
Duration of simulation	s	14,400
Long Term Time Step	s	600

STFATE Model Inputs: Skiffs Creek DU 05/06

INPUT PARAMETER	UNITS	VALUE
Convective descent output		
Collapse phase output option		
Number of print times for diffusion		
Number of depths for output		4
Depths for output	ft	0, 15, 30, 45, 65

DREDGE MATERIAL

Location		Skiffs Creek
Bulking Factor		1.0 (sand/gravel), 1.0 (silt/clay)
Site Water Density	g/cc	1.0053

Water Quality - Tier II

Contaminant		Ammonia
Acute Water Quality Criteria at Edge of Mixing Zone (C_{wq})	mg/L	4.91
Predicted initial concentration in fluid (C_s)	mg/L	15
Background concentration (C_{ds})	mg/L	0.12
Dilution Required (D_r)		2.11

Toxicity - Tier III

		Lowest
EC50	% Elutriate	26.3

SKIFFES CREEK

Tier 2 Water Quality Criteria LPC
SC-05/06

Limiting Constituent = Ammonia
Placement Volume = 6,500 cubic yards

TIER 2 STFATE MODEL RESULTS SUMMARY: Skiffes Creek DU 05/06
Norfolk Ocean Disposal Site, Norfolk, VA

Scenario: Skiffes Creek DU 05/06		Placement Volume: 6,500	
Tier II - Water Quality Criteria			
Analyte: Ammonia		Water Quality Criterion: 4.91	
		Elutriate Concentration (C _s): 15	
		Background concentration (C _{ds}): 0.12	
		Dilution Required: 2.1	
		Dilution Factor Achieved: 380	
WQC Initial Mixing Computation Results: 4-Hour Criterion			
Time (hours)	Depth (ft)	Maximum Contaminant Concentration (C _{max}) on Grid	Dilution on Grid (D _{a-wq})
4.0	0	1.20E-01	8.27E+20
4.0	15	1.20E-01	1.68E+12
4.0	30	1.20E-01	1.47E+06
4.0	45	1.33E-01	1.11E+03
4.0	65	1.25E-01	2.81E+03
4.0	53.5	1.59E-01	3.80E+02
WQC Initial Mixing Computation Results: Disposal Site Boundary Criterion			
Depth (ft)	Time Corresponding to C _{max} Outside Disposal Site (hours)	Maximum Contaminant Concentration (C _{max}) Outside Disposal Site (percent)	Dilution Outside Disposal Site (D _{a-wq})
0	NA	NA	NA
15	NA	NA	NA
30	NA	NA	NA
45	NA	NA	NA
65	NA	NA	NA
53.5	NA	NA	NA
D _{a-wq} = (C _s - C _{max}) / (C _{max} - C _{ds}); where C _s = elutriate concentration and C _{ds} = background concentration			
Shaded row = depth of maximum concentration			
1. Concentration above background (C _{max} - C _{ds}) = 0.			

SKIFFES CREEK

Tier 3 Water Column Toxicity LPC
SC-05/06

$EC_{50} = 26.3$ Percent Elutriate
Placement Volume = 6,500 cubic yards

TIER 3 STFATE MODEL RESULTS SUMMARY: Skiffes Creek DU 05/06
Norfolk Ocean Disposal Site, Norfolk, VA

Scenario: Skiffes Creek DU 05/06		Placement Volume (cy): 6,500	
Tier III - Water Column Toxicity		LPC: 0.263	
Species: <i>Mytilis</i>		Dilution Required: 379	
		Dilution Achieved: 382	
Toxicity Initial Mixing Computation Results: 4-Hour Criterion			
Time (hours)	Depth (ft)	Maximum Contaminant Concentration (C _{tox}) on Grid	Dilution on Grid (D _{a-tox})
4.0	0	1.20E-19	8.33E+20
4.0	15	5.90E-11	1.69E+12
4.0	30	6.72E-05	1.49E+06
4.0	45	8.91E-02	1.12E+03
4.0	65	3.53E-02	2.83E+03
4.0	53.5	2.61E-01	3.82E+02
Toxicity Initial Mixing Computation Results: Disposal Site Boundary Criterion			
Depth (ft)	Time Corresponding to C _{tox} Outside Disposal Site (hours)	Maximum Contaminant Concentration (C _{tox}) Outside Disposal Site (percent)	Dilution Outside Disposal Site (D _{a-tox})
0	NA	NA	NA
15	NA	NA	NA
30	NA	NA	NA
45	NA	NA	NA
65	NA	NA	NA
53.5	NA	NA	NA
D _{a-tox} = (100 - C _{tox}) / C _{tox}			
Shaded row = depth of maximum concentration			
1. Concentration outside disposal site (C _{tox} - C _{ds}) = 0.			

SKIFFES CREEK

STFATE Compliance Summary and Model Inputs
SC-07/08

Summary of STFATE Modeling for Placement of Dredge Material from Skiffes Creek DU 07/08 into the Norfolk ODMDS.

	1-hr		4-hrs		Tier II WQ Violation?	Tier III WQ Violation?
Placement Volume (cuy)	Dilution Factor	Feet Traveled	Dilution Factor	Feet Traveled		
3,000	23	1,140	693	4,173	No	No
4,000	20	1,140	551	4,173	No	No
5,000	17	1,140	462	4,173	No	No
6,000	15	1,140	402	4,173	No	No
6,800	14	1,140	365	4,173	No	No
6,900	14	1,140	361	4,173	No	Yes
7,000	14	1,140	357	4,173	No	Yes

STFATE Model Inputs: Skiffs Creek DU 07/08

INPUT PARAMETER	UNITS	VALUE
SITE DESCRIPTION		
Disposal Site Name		Norfolk ODMDS
Number of grid points (L-R, +z dir)		96
Number of grid points (T-B, +x dir)		96
Grid spacing (Left to Right) Z-Axis	ft	100
Grid spacing (Top to Bottom) X-Axis	ft	100
Constant water depth	ft	65
Bottom roughness	ft	0.005
Bottom slope (x-dir)	deg	0
Bottom slope (z-dir)	deg	0.001
Number of points in density profile		2
	0 ft g/cc	1.0237
	30 g/cc	1.0237
	65 g/cc	1.0250

AMBIENT VELOCITY

Type of velocity profile (≥ 0.1 fps)		Depth-Averaged
Logarithmic Profile		No
Depth ft	Velocity X (fps)	Velocity Z (fps)
65	0.232	0.232

STFATE Model Inputs: Skiffs Creek DU 07/08

INPUT PARAMETER

UNITS

VALUE

DISPOSAL OPERATION

Disposal point top of grid (X-Axis)	ft	4,800
Disposal point left edge of grid (Z-Axis)	ft	4,800
Dumpint Over Depression		No
Bottom depression length x-direction	ft	0
Bottom depression length z-direction	ft	0
Bottom depression average depth	ft	0
Location of Disposal Site		
Upper Left Corner Distance from Top Edge (X)	ft	500
Upper Left Corner Distance from Left Edge (Z)	ft	500
Lower Right Corner Distance from Top Edge (X)	ft	8,600
Lower Right Corner Distance from Left Edge (Z)	ft	8,600
Length of vessel bin	ft	165
Width of vessel bin	ft	45
Distance Between Bins	ft	5
Predisposal draft	ft	20
Postdisposal draft	ft	10
Time to empty vessel	s	90
Number of Bins that Open Simultaneously	s	1
Number of Discrete Openings of Sets of Bins	s	1
Vessel velocity in x-direction	ft/s	1.7
Vessel velocity in z-direction	ft/s	0
Number of layers		1
Volume of each layer	yd ³	4,000

COEFFICIENTS

Settling coef (BETA)		0.000
Apparent mass coefficient (CM)		1.000
Drag coefficient (CD)		0.500
Form drag collapse cloud (CDRAG)		1.000
Skin friction collapse cloud (CFRIC)		0.010
Drag ellipse wedge (CD3)		0.100
Drag plate (CD4)		1.000
Friction between cloud and bottom (FRICTN)		0.010
4/3 Law horizontal diffusion coefficient (ALAMDA)		0.001
Unstratified vertical diffusion coefficient (AKY0)		0.025
Cloud/ambient density gradient ratio (GAMA)		0.250
Turbulent thermal entrainment (ALPHA0)		0.235
Entrainment collapse (ALPHAC)		0.100
Stripping factor (CSTRIP)		0.003

INPUT, EXECUTION & OUTPUT KEYS

Process to simulate		Disp. from Split-Hull Barge/Scow
Duration of simulation	s	14,400
Long Term Time Step	s	600

STFATE Model Inputs: Skiffs Creek DU 07/08

INPUT PARAMETER	UNITS	VALUE
Convective descent output		
Collapse phase output option		
Number of print times for diffusion		
Number of depths for output		4
Depths for output	ft	0, 15, 30, 45, 65

DREDGE MATERIAL

Location		Skiffs Creek
Bulking Factor		1.0 (sand/gravel), 1.0 (silt/clay)
Site Water Density	g/cc	1.0053

Water Quality - Tier II

Contaminant		Ammonia
Acute Water Quality Criteria at Edge of Mixing Zone (C_{wq})	mg/L	4.91
Predicted initial concentration in fluid (C_s)	mg/L	20
Background concentration (C_{ds})	mg/L	0.12
Dilution Required (D_r)		3.15

Toxicity - Tier III

		Lowest
EC50	% Elutriate	27.6

SKIFFES CREEK

Tier 2 Water Quality Criteria LPC
SC-07/08

Limiting Constituent = Ammonia
Placement Volume = 6,800 cubic yards

TIER 2 STFATE MODEL RESULTS SUMMARY: Skiffes Creek DU 07/08

Norfolk Ocean Disposal Site, Norfolk, VA

Scenario: Skiffes Creek DU 09/10		Placement Volume: 6,800	
Tier II - Water Quality Criteria			
Analyte: Ammonia		Water Quality Criterion: 4.91	
		Elutriate Concentration (C _s): 20	
		Background concentration (C _{ds}): 0.12	
		Dilution Required: 3.2	
		Dilution Factor Achieved: 358	
WQC Initial Mixing Computation Results: 4-Hour Criterion			
Time (hours)	Depth (ft)	Maximum Contaminant Concentration (C _{max}) on Grid	Dilution on Grid (D _{a-wq})
4.0	0	1.20E-01	2.70E+20
4.0	15	1.20E-01	8.84E+11
4.0	30	1.20E-01	1.09E+06
4.0	45	1.40E-01	9.98E+02
4.0	65	1.28E-01	2.65E+03
4.0	53.3	1.75E-01	3.58E+02
WQC Initial Mixing Computation Results: Disposal Site Boundary Criterion			
Depth (ft)	Time Corresponding to C _{max} Outside Disposal Site (hours)	Maximum Contaminant Concentration (C _{max}) Outside Disposal Site (percent)	Dilution Outside Disposal Site (D _{a-wq})
0	NA	NA	NA
15	NA	NA	NA
30	NA	NA	NA
45	NA	NA	NA
65	NA	NA	NA
53.3	NA	NA	NA
D _{a-wq} = (C _s - C _{max}) / (C _{max} - C _{ds}); where C _s = elutriate concentration and C _{ds} = background concentration			
Shaded row = depth of maximum concentration			
1. Concentration above background (C _{max} - C _{ds}) = 0.			

SKIFFES CREEK

Tier 3 Water Column Toxicity LPC
SC-07/08

$EC_{50} = 27.6$ Percent Elutriate
Placement Volume = 6,800 cubic yards

TIER 3 STFATE MODEL RESULTS SUMMARY: Skiffes Creek DU 07/08
Norfolk Ocean Disposal Site, Norfolk, VA

Scenario: Skiffes Creek DU 07/08		Placement Volume (cy): 6,800	
Tier III - Water Column Toxicity		LPC: 0.276	
Species: <i>Mytilis</i>		Dilution Required: 361	
		Dilution Achieved: 365	
Toxicity Initial Mixing Computation Results: 4-Hour Criterion			
Time (hours)	Depth (ft)	Maximum Contaminant Concentration (C _{tox}) on Grid	Dilution on Grid (D _{a-tox})
4.0	0	3.88E-19	2.58E+20
4.0	15	1.15E-10	8.70E+11
4.0	30	9.18E-05	1.09E+06
4.0	45	9.85E-02	1.01E+03
4.0	65	3.70E-02	2.70E+03
4.0	53.3	2.73E-01	3.65E+02
Toxicity Initial Mixing Computation Results: Disposal Site Boundary Criterion			
Depth (ft)	Time Corresponding to C _{tox} Outside Disposal Site (hours)	Maximum Contaminant Concentration (C _{tox}) Outside Disposal Site (percent)	Dilution Outside Disposal Site (D _{a-tox})
0	NA	NA	NA
15	NA	NA	NA
30	NA	NA	NA
45	NA	NA	NA
65	NA	NA	NA
53.3	NA	NA	NA
D _{a-tox} = (100 - C _{tox}) / C _{tox}			
Shaded row = depth of maximum concentration			
1. Concentration outside disposal site (C _{tox} - C _{ds}) = 0.			

SKIFFES CREEK

STFATE Compliance Summary and Model Inputs
SC-09/10

Summary of STFATE Modeling for Placement of Dredge Material from Skiffes Creek DU 09/10 into the Norfolk ODMDS.

	1-hr		4-hrs		Tier II WQ Violation?	Tier III WQ Violation?
Placement Volume (cuy)	Dilution Factor	Feet Traveled	Dilution Factor	Feet Traveled		
3,000	23	1,140	684	4,173	No	No
4,000	19	1,140	542	4,173	No	No
5,000	17	1,140	456	4,173	No	No
5,600	16	1,140	417	4,173	No	No
5,700	16	1,140	412	4,173	No	Yes
6,000	15	1,140	396	4,173	No	Yes

STFATE Model Inputs: Skiffs Creek DU 09/10

INPUT PARAMETER	UNITS	VALUE
SITE DESCRIPTION		
Disposal Site Name		Norfolk ODMDS
Number of grid points (L-R, +z dir)		96
Number of grid points (T-B, +x dir)		96
Grid spacing (Left to Right) Z-Axis	ft	100
Grid spacing (Top to Bottom) X-Axis	ft	100
Constant water depth	ft	65
Bottom roughness	ft	0.005
Bottom slope (x-dir)	deg	0
Bottom slope (z-dir)	deg	0.001
Number of points in density profile		2
	0 ft g/cc	1.0237
	30 g/cc	1.0237
	65 g/cc	1.0250

AMBIENT VELOCITY

Type of velocity profile (≥ 0.1 fps)		Depth-Averaged
Logarithmic Profile		No
Depth ft	Velocity X (fps)	Velocity Z (fps)
65	0.232	0.232

STFATE Model Inputs: Skiffs Creek DU 09/10

INPUT PARAMETER

UNITS

VALUE

DISPOSAL OPERATION

Disposal point top of grid (X-Axis)	ft	4,800
Disposal point left edge of grid (Z-Axis)	ft	4,800
Dumpint Over Depression		No
Bottom depression length x-direction	ft	0
Bottom depression length z-direction	ft	0
Bottom depression average depth	ft	0
Location of Disposal Site		
Upper Left Corner Distance from Top Edge (X)	ft	500
Upper Left Corner Distance from Left Edge (Z)	ft	500
Lower Right Corner Distance from Top Edge (X)	ft	8,600
Lower Right Corner Distance from Left Edge (Z)	ft	8,600
Length of vessel bin	ft	165
Width of vessel bin	ft	45
Distance Between Bins	ft	5
Predisposal draft	ft	20
Postdisposal draft	ft	10
Time to empty vessel	s	90
Number of Bins that Open Simultaneously	s	1
Number of Discrete Openings of Sets of Bins	s	1
Vessel velocity in x-direction	ft/s	1.7
Vessel velocity in z-direction	ft/s	0
Number of layers		1
Volume of each layer	yd ³	4,000

COEFFICIENTS

Settling coef (BETA)		0.000
Apparent mass coefficient (CM)		1.000
Drag coefficient (CD)		0.500
Form drag collapse cloud (CDRAG)		1.000
Skin friction collapse cloud (CFRIC)		0.010
Drag ellipse wedge (CD3)		0.100
Drag plate (CD4)		1.000
Friction between cloud and bottom (FRICTN)		0.010
4/3 Law horizontal diffusion coefficient (ALAMDA)		0.001
Unstratified vertical diffusion coefficient (AKY0)		0.025
Cloud/ambient density gradient ratio (GAMA)		0.250
Turbulent thermal entrainment (ALPHA0)		0.235
Entrainment collapse (ALPHAC)		0.100
Stripping factor (CSTRIP)		0.003

INPUT, EXECUTION & OUTPUT KEYS

Process to simulate		Disp. from Split-Hull Barge/Scow
Duration of simulation	s	14,400
Long Term Time Step	s	600

STFATE Model Inputs: Skiffs Creek DU 09/10

INPUT PARAMETER	UNITS	VALUE
Convective descent output		
Collapse phase output option		
Number of print times for diffusion		
Number of depths for output		4
Depths for output	ft	0, 15, 30, 45, 65

DREDGE MATERIAL

Location		Skiffs Creek
Bulking Factor		1.0 (sand/gravel), 1.0 (silt/clay)
Site Water Density	g/cc	1.0053

Water Quality - Tier II

Contaminant		Ammonia
Acute Water Quality Criteria at Edge of Mixing Zone (C_{wq})	mg/L	4.91
Predicted initial concentration in fluid (C_s)	mg/L	20
Background concentration (C_{ds})	mg/L	0.12
Dilution Required (D_r)		3.15

Toxicity - Tier III

		Lowest
EC50	% Elutriate	24.2

SKIFFES CREEK

**Tier 2 Water Quality Criteria LPC
SC-09/10**

Limiting Constituent = Ammonia
Placement Volume = 5,600 cubic yards

TIER 2 STFATE MODEL RESULTS SUMMARY: Skiffes Creek DU 09/10
Norfolk Ocean Disposal Site, Norfolk, VA

Scenario: Skiffes Creek DU 09/10		Placement Volume: 5,600	
Tier II - Water Quality Criteria			
Analyte: Ammonia		Water Quality Criterion: 4.91	
		Elutriate Concentration (C _s): 20	
		Background concentration (C _{ds}): 0.12	
		Dilution Required: 3.2	
		Dilution Factor Achieved: 415	
WQC Initial Mixing Computation Results: 4-Hour Criterion			
Time (hours)	Depth (ft)	Maximum Contaminant Concentration (C _{max}) on Grid	Dilution on Grid (D _{a-wq})
4.0	0	1.20E-01	3.55E+22
4.0	15	1.20E-01	1.41E+13
4.0	30	1.20E-01	3.86E+06
4.0	45	1.34E-01	1.46E+03
4.0	65	1.26E-01	3.07E+03
4.0	53.8	1.68E-01	4.15E+02
WQC Initial Mixing Computation Results: Disposal Site Boundary Criterion			
Depth (ft)	Time Corresponding to C _{max} Outside Disposal Site (hours)	Maximum Contaminant Concentration (C _{max}) Outside Disposal Site (percent)	Dilution Outside Disposal Site (D _{a-wq})
0	NA	NA	NA
15	NA	NA	NA
30	NA	NA	NA
45	NA	NA	NA
65	NA	NA	NA
53.8	NA	NA	NA
D _{a-wq} = (C _s - C _{max}) / (C _{max} - C _{ds}); where C _s = elutriate concentration and C _{ds} = background concentration			
Shaded row = depth of maximum concentration			
1. Concentration above background (C _{max} - C _{ds}) = 0.			

SKIFFES CREEK

Tier 3 Water Column Toxicity LPC
SC-09/10

$EC_{50} = 24.2$ Percent Elutriate
Placement Volume = 5,600 cubic yards

TIER 3 STFATE MODEL RESULTS SUMMARY: Skiffes Creek DU 09/10
Norfolk Ocean Disposal Site, Norfolk, VA

Scenario: Skiffes Creek DU 09/10		Placement Volume (cy): 5,600	
Tier III - Water Column Toxicity		LPC: 0.242	
Species: <i>Mytilis</i>		Dilution Required: 412	
		Dilution Achieved: 417	
Toxicity Initial Mixing Computation Results: 4-Hour Criterion			
Time (hours)	Depth (ft)	Maximum Contaminant Concentration (C _{tox}) on Grid	Dilution on Grid (D _{a-tox})
4.0	0	2.80E-21	3.57E+22
4.0	15	7.06E-12	1.42E+13
4.0	30	2.58E-05	3.88E+06
4.0	45	6.80E-02	1.47E+03
4.0	65	3.24E-02	3.09E+03
4.0	53.8	2.39E-01	4.17E+02
Toxicity Initial Mixing Computation Results: Disposal Site Boundary Criterion			
Depth (ft)	Time Corresponding to C _{tox} Outside Disposal Site (hours)	Maximum Contaminant Concentration (C _{tox}) Outside Disposal Site (percent)	Dilution Outside Disposal Site (D _{a-tox})
0	NA	NA	NA
15	NA	NA	NA
30	NA	NA	NA
45	NA	NA	NA
65	NA	NA	NA
53.8	NA	NA	NA
D _{a-tox} = (100 - C _{tox}) / C _{tox}			
Shaded row = depth of maximum concentration			
1. Concentration outside disposal site (C _{tox} - C _{ds}) = 0.			

APPENDIX C

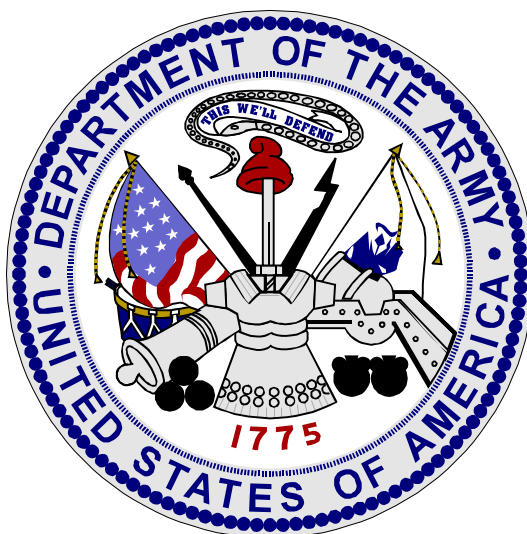
2003 ENVIRONMENTAL ASSESSMENT FOR MAINTENANCE DREGDING OF THE SKIFFES CREEK CHANNEL

ENVIRONMENTAL ASSESSMENT 2003

Final

**Environmental Assessment for the
Maintenance Dredging of the Skiffes Creek Channel
and the MARAD Facility Access Channel**

Fort Eustis, Virginia



Prepared by

**US Army Corps of Engineers
Norfolk District**

with technical assistance from

**Tetra Tech, Inc.
Fairfax, VA 22030**

January 2003

ENVIRONMENTAL ASSESSMENT ORGANIZATION

This Environmental Assessment (EA) addresses potential environmental effects of the proposed dredging of Skiffes Creek Channel and the U.S. Maritime Administration (MARAD) Facility Access Channel, as required by Army Regulation 200-2 *Environmental Effects of Army Actions* and the National Environmental Policy Act.

CONTENTS

An ***EXECUTIVE SUMMARY*** briefly describes the proposed action, environmental consequences, and mitigation measures.

SECTION 1.0: ***PURPOSE AND NEED FOR THE PROPOSED ACTION*** summarizes the purpose of and need for the proposed action and describes the scope of the environmental analysis process.

SECTION 2.0: ***DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES*** describes the proposed action to dredge the Skiffes Creek Channel and the MARAD Facility Access Channel, and to expand the FEDMMA, as well as the no action alternative.

SECTION 3.0: ***AFFECTED ENVIRONMENT*** describes the existing environmental setting at Fort Eustis, Virginia.

SECTION 4.0: ***ENVIRONMENTAL CONSEQUENCES*** identifies the potential effects of implementing the proposed action and of the no action alternative.

SECTION 5.0: ***FINDINGS AND CONCLUSIONS*** summarizes the potential environmental effects.

SECTION 6.0: ***REFERENCES*** provides bibliographical information for cited sources.

SECTION 7.0: ***PERSONS CONSULTED*** provides a listing of persons and agencies consulted during preparation of this EA.

SECTION 8.0: ***DISTRIBUTION LIST*** indicates recipients of this EA.

SECTION 9.0: ***LIST OF PREPARERS*** identifies persons who prepared the document.

<i>APPENDICES</i>	<i>A</i> Scoping Letter, Distribution List, and Responses
	<i>B</i> Sediment Sampling Results
	<i>C</i> Consultation Letters and Responses
	<i>D</i> Coastal Zone Consistency Determination
	<i>E</i> Bird Species at Fort Eustis
	<i>F</i> Fish Species at Fort Eustis
	<i>G</i> Essential Fish Habitat (EFH) Assessment
	<i>H</i> Record of Non-Applicability (RONA) and Air Quality Model

ACRONYMS AND ABBREVIATIONS



Printed on Recycled Paper

Finding of No Significant Impact
For the Maintenance Dredging of the Skiffes Creek Channel and the MARAD
Facility Access Channel
Fort Eustis, Virginia

Pursuant to the Council on Environmental Quality Regulations (40 CFR Parts 1500-1508) for implementing the procedural provisions of the National Environmental Policy Act (42 U.S.C. 4321 et seq.) and Army Regulation 200-2 (*Environmental Effects of Army Actions*), an Environmental Assessment (EA) was prepared by the U.S. Army Corps of Engineers, Norfolk District, for the U.S. Army Transportation Center and Fort Eustis, to evaluate the potential environmental and socioeconomic effects associated with the proposed dredging project at Fort Eustis, Virginia.

Proposed Action

The Army proposes to dredge two unconnected but neighboring navigation channels accessing facilities on the eastern shoreline of the James River, Virginia and raise the dikes of the Fort Eustis Dredged Material Management Area (FEDMMA). Approximately 680,000 cubic yards of material would be dredged. The dredged material would be disposed of in the existing dredged material disposal area located on Fort Eustis. This proposed action is the Army's preferred alternative.

The purpose of the proposed action is to provide adequate access for vessels using the Third Port and servicing the James River Reserve Fleet, and to accommodate the volume of dredged material to be disposed of during this and foreseeable future dredging operations. Implementation of the proposed action would support the Army's need to maintain its capability to conduct Army and joint Logistics Over The Shore (LOTS) operations. This capability can be achieved only by developing and maintaining soldiers' proficiency in the port activities of loading and unloading military equipment and supplies from oceangoing ships. Implementation of this action would also support the MARAD's mission to maintain the James River Reserve Fleet in a 30-day stand-by status for use in the event of a national mobilization for war.

Alternatives Considered

The Army identified three alternative disposal sites to the proposed action, Craney Island, overboard disposal in the James River, and at another site on Fort Eustis. Under the Craney Island alternative, the Army would dispose of the dredged material in the Craney Island Disposal Facility located in the southern portion of the Chesapeake Bay. The dredged material would be placed in a barge, towed approximately 20 miles to Craney Island, and pumped from the barge into the disposal facility. This would increase dredging and material disposal costs by as much as 100 percent. More importantly, the two channels proposed for dredging are considered outside the Hampton Roads area and thus the dredged material is not eligible to be placed in Craney Island, per the Craney Island authorization documents. Because of these reasons, use of the Craney Island Disposal Facility is not considered feasible and is not examined further in this EA. Under the

overboard disposal alternative, the Army would dump the dredged material into currently designated overboard areas of the James River. The impacts associated with overboard disposal would be similar to those resulting from dredging operations, except that the affected area would be larger since confinement is not technically feasible. The most obvious and most significant impact from overboard disposal would be direct burial and suffocation of benthic organisms. Numerous studies have shown that benthic organisms recover in 1-2 years after placement of dredged material. Overboard placement of dredged material in the James River occurs approximately every 5 years for material dredged from the nearby Tribell Shoal on the James River Federal Navigation Project. This designated overboard site does not have the capacity for the placement of any additional material from other project channels. Therefore, overboard disposal is not considered technically feasible and is not further evaluated in this EA. Under the other sites on Fort Eustis alternative, the Army would dispose of the dredged material at another upland location on Fort Eustis. An Environmental Assessment entitled "Maintenance Dredging, Skiffes Creek, Fort Eustis, Virginia", prepared by the Norfolk District Corps of Engineers in August 1988, assessed the feasibility of disposing of the dredged material on the installation at the golf course, the horseback riding facility, and at training sites south of Back River Road. These alternative locations and others at Fort Eustis, previously studied by the U.S. Army Waterways Experiment Station (Miscellaneous Paper GL-87-2, July 1987) were again determined to be neither fiscally nor technically feasible nor compatible with the Fort Eustis mission or Master Plan, and therefore are not evaluated further in this EA.

The CEQ regulations prescribe including a no action alternative, which serves as a benchmark against which proposed actions can be evaluated. The no action alternative assumes the Army would not dredge either channel.

Factors Considered in Determining that No Environmental Impact Statement is Required

The EA, which is incorporated by reference into this Finding of No Significant Impact, examined potential direct, indirect, and cumulative effects of the proposed action and the no action alternative on 15 resource areas of environmental and socioeconomic concern. The Army found that certain environmental and socioeconomic resources and conditions (land use, geology and soils, air space, transportation resources, utilities, cultural resources, socioeconomics, environmental justice, protection of children, solid waste, and hazardous and toxic substances) would not be affected by the proposed action. Implementation of the proposed action would result in short-term minor adverse effects on air quality, noise, water resources, and biological resources.

Conclusion

Based on the results of the EA, it has been determined that implementation of the proposed action will have no significant direct, indirect or cumulative effects on the quality of the natural or human environment. Therefore, an Environmental Impact Statement is not required and will not be prepared.

Public Comment

Interested parties are invited to review and comment on this FNSI and EA within 15 days of publication of the Notice of Availability in the *Daily Press*. Copies of the EA are available in the Internet at <http://www.nao.usace.army.mil/> under “Studies and Projects/Current Studies and Projects”. Comments should be addressed to Mr. Richard Muller, U.S. Army Corps of Engineers, Norfolk District, Attn: CENAO-PM-E, 803 Front Street, Norfolk, Virginia 23510-1096 (Email: richard.j.muller@usace.army.mil).

Date: _____

E. Douglas Earle
Colonel, TC
Garrison Commander
Fort Eustis, Virginia

Environmental Assessment
For the Dredging of Skiffes Creek and the MARAD Facility Channel,
Newport News, Virginia

Prepared by:

David L. Hansen, Colonel
Corps of Engineers, Commanding
U.S. Army Corps of Engineers
Norfolk District

Reviewed by:

Susan A. Bivins
Staff Judge Advocate
U.S. Army Transportation Center
Fort Eustis, Virginia

Stephen A. McCall
Chief, Environmental and Natural Resources
Division
US Army Transportation Center
Fort Eustis, Virginia

James E. Brooks
Lieutenant Colonel (P), EN
Director of Public Works
Fort Eustis, Virginia

Approved by:

E. Douglas Earle
Colonel, TC
Garrison Commander
Fort Eustis, Virginia

ENVIRONMENTAL ASSESSMENT

LEAD AGENCY: U.S. Army Transportation Center and Fort Eustis

TITLE OF THE PROPOSED ACTION: Maintenance Dredging of the Skiffes Creek Channel and the MARAD Facility Access Channel, Fort Eustis, Virginia

AFFECTED JURISDICTION: City of Newport News, Virginia

PREPARED BY: U.S. Army Corps of Engineers, Norfolk District

APPROVED BY: E. Douglas Earle, Colonel, TC, Garrison Commander, Fort Eustis, Virginia

ABSTRACT: This Environmental Assessment (EA) considers actions required as a result of maintenance dredging the Skiffes Creek Channel and the U.S. Maritime Administration (MARAD) Facility Access Channel. The Army and MARAD propose to remove approximately 680,000 cubic yards of material from the existing channels. The dredging will be to approved connecting depths in the James River. The dredged material will be placed in the Fort Eustis Dredged Material Management Area (FEDMMA) an upland dredged material placement area on Fort Eustis. It will be necessary for the Army to expand the volumetric capacity of the FEDMMA to accommodate additional dredged material by raising the containment dikes from their present elevation of approximately +20 feet m.s.l. to approximately +30 feet m.s.l. This EA considers two main alternatives, the proposed action and no action. One other alternative, dredging with disposal at alternative locations, was considered. This was dismissed as not fiscally or technically feasible, nor environmentally desirable, and is not further evaluated in detail in this EA. Implementation of the no action alternative would involve continuation of current operations. Implementation of the proposed action is not expected to result in significant environmental effects. Therefore, preparation of an Environmental Impact Statement is not required and a Finding of No Significant Impact will be published in accordance with Army Regulation 200-2, *Environmental Effects of Army Actions*, and the National Environmental Policy Act.

REVIEW COMMENT DEADLINE: Comments may be provided to Mr. Richard Muller by mail at the U.S. Army Corps of Engineers, Norfolk District, (ATTN: CENAO-PM-E), 803 Front Street, Norfolk, Virginia 23510-1096; by email at richard.j.muller@usace.army.mil; or by facsimile at 757-441-7875. Comments on this EA must be received within 30 days of the date of publication.

EXECUTIVE SUMMARY

INTRODUCTION

This Environmental Assessment (EA) identifies, documents, and evaluates the potential environmental effects associated with the dredging project at Fort Eustis, Virginia and those associated with a no action alternative. The document has been developed in accordance with the National Environmental Policy Act (NEPA) of 1969, Council on Environmental Quality (CEQ) Implementing Regulations, and Army Regulation (AR) 200-2. The purpose of this document is to inform decision makers and the public of the likely environmental consequences of the proposed action and alternatives.

PROPOSED ACTION

The Army proposes to conduct maintenance dredging for two unconnected but neighboring navigation channels accessing facilities on the eastern shoreline of the James River, Virginia. The dikes on the FEDMMA would be raised to accommodate the dredged material. The more northern channel is Skiffes Creek, which provides access to Third Port, Fort Eustis, Virginia, and the southern channel provides access to the U.S. Maritime Administration (MARAD) Facility in Newport News, Virginia. Dredged material would be placed within the 80-acre FEDMMA. This area was last used in January 1994 when approximately 290,000 cubic yards of material were pumped into the site from Skiffes Creek. In order to accommodate the dredged material, the dike walls would be raised from +20 feet m.s.l. to +30 feet m.s.l.

The Army estimates 680,000 cubic yards of silty sand/sandy clay material would need to be removed from the two channels. Dredging will be accomplished by hydraulic means and dredged material would be hydraulically pumped to the FEDMMA.

The dredging activities at the two channels would take approximately one year.

ALTERNATIVES

Alternative Disposal Sites

Three alternative disposal sites, Craney Island, the James River (overboard disposal), and at another site on Fort Eustis, were evaluated. These were determined to be neither economically nor environmentally feasible, and are not evaluated further in this EA.

No action alternative

This document refers to the continuation of existing conditions of the affected environment, without implementation of the proposed action, as the no action alternative. The Council on Environmental Quality (CEQ) regulations prescribe including a no action alternative, which serves as a baseline against which the impacts of the proposed action and alternatives can be evaluated. Under the no action alternative, the Army would not dredge the two channels. Discontinued maintenance of the two channels would result in the continued reduction in operational depth of the navigation channels. Eventually the channels would reach hydrodynamic equilibrium as determined by the tidal and fluvial currents of Skiffes Creek and the James River. This depth would approximate the adjacent bathymetry of the James River and would not be adequate for Fort Eustis to function in its transportation training capacity or MARAD to function in its stand-by mobilization capacity. The no action alternative is evaluated in detail in this EA.

ENVIRONMENTAL CONSEQUENCES

Implementation of the proposed action would result in short-term minor adverse effects on the environmental resource areas examined in the EA. Table ES-1 summarizes the level of environmental effects on each resource area that would likely result from implementing the proposed action. The effects on the natural environment (air, noise, water resources, and biological resources) are expected to be minor and adverse. Cumulative environmental effects associated with past, present, and reasonably foreseeable future actions are also summarized.

Long-term minor adverse impacts would result from the no action alternative due to increased air emissions from mobile sources. This would result from vehicles transporting cargo between Fort Eustis and the nearest port capable of handling the 7th Group's larger vessels.

CONCLUSIONS

Based on this EA, implementation of the proposed action will have no significant direct, indirect, or cumulative effects on the quality of the natural or human environment. Because no significant environmental impacts would result from implementing of the proposed action, preparation of an Environmental Impact Statement is not required. Implementation of the mitigation measures described in Table ES-2 is recommended. Preparation of a FNSI is appropriate.

Table ES-1
Summary of Effects for the Proposed Action

Resource Area	Direct Effects	Indirect Effects	Cumulative Effects
Air Quality	Short-term minor adverse	No effects	No effects
Noise	Short-term minor adverse	No effects	No effects
Water Resources	Short-term minor adverse	No effects	No effects
Biological Resources	Short-term minor adverse to essential fish habitat and aquatic resources	No effects	Short-term minor adverse

Table ES-2
Summary of Mitigation Measures

<i>Mitigation Measure</i>	<i>Implementing Organization</i>
<i>Air Quality</i>	
<ul style="list-style-type: none"> Water or chemicals would be used to control dust during dike renovations. 	USACE, Norfolk District
<i>Noise</i>	
<ul style="list-style-type: none"> Dike renovation activities would be limited to daylight hours. 	USACE, Norfolk District
<i>Water Resources</i>	
<ul style="list-style-type: none"> During dike renovation and dredging, project personnel would ensure that the project site work areas would be securely covered with tarps whenever the possibility of rain is forecast to ensure that no spilled POL, other potentially polluting substances used during the project, or debris from the project would be washed into surface waters or directed to groundwaters. 	USACE, Norfolk District
<ul style="list-style-type: none"> To prevent runoff and sediment loading to surface waters during dike renovations, erosion control would include silt fences, straw bale dikes, diversion ditches, riprap channels, water bars, and water spreaders. 	USACE, Norfolk District
<ul style="list-style-type: none"> If water quality standards were not met at the placement site discharge point, dredging would be suspended until conditions were corrected. 	USACE, Norfolk District
<ul style="list-style-type: none"> Standard operating procedures for the prevention of spills and contingency operations in the event of a spill are in place and would be employed. Established BMPs on fuel handling would be used to reduce or eliminate the likelihood of a spill. Spill response capabilities would be available at the dredging sites to address any accidental spills or discharges, and could be deployed to any sites along the channels to be dredged. Spill response capabilities would also be available at MARAD or other facilities in the Hampton Roads area. Installation spill response assets also exist and all spills/discharges will be reported immediately to the Fort Eustis Fire and Emergency Services Division. 	USACE, Norfolk District
<i>Biological Resources</i>	
<ul style="list-style-type: none"> Any wetlands disturbed by the hydraulic dredge line would be repaired. 	USACE, Norfolk District
<ul style="list-style-type: none"> Any additional protective measures will be identified by agency response to this NEPA document and by the Commonwealth of Virginia through their Virginia Water Protection Permit. 	State of Virginia

TABLE OF CONTENTS

Executive Summary	ES-1
 Section 1.0: Purpose and Need for the Proposed Action	 1-1
1.1 Background.....	1-1
1.2 Purpose and Need	1-1
1.3 Scope.....	1-2
1.4 Public Involvement	1-3
1.5 Framework for Decision Making.....	1-3
 Section 2.0: Description of the Proposed Action and Alternatives	 2-1
2.1 Proposed Action.....	2-1
2.1.1 Introduction	2-1
2.1.2 Project Site	2-1
2.1.3 Dredging Activities	2-4
2.1.4 FEDMMA Expansion	2-4
2.1.5 Dredged Materials Assessments	2-5
2.1.6 Project Schedule	2-5
2.2 Alternatives.....	2-6
2.2.1 Introduction	2-6
2.2.2 No Action Alternative.....	2-6
2.2.3 Alternative Disposal Sites	2-6
 Section 3.0: Affected Environment	 3-1
3.1 Introduction	3-1
3.1.1 Overview	3-1
3.1.2 Resources Not Examined in Detail	3-1
3.2 Air Quality.....	3-3
3.3 Noise	3-3
3.4 Water Resources	3-4
3.4.1 Surface Waters.....	3-4
3.4.2 Storm Water Runoff.....	3-4

3.4.3 Floodplains	3-4
3.4.4 Groundwater	3-5
3.4.5 Water Quality	3-5
3.5 Biological Resources	3-6
3.5.1 Introduction	3-6
3.5.2 Terrestrial Vegetation.....	3-6
3.5.3 Wetlands	3-6
3.5.4 Wildlife	3-7
3.5.5 Essential Fish Habitat.....	3-7
3.5.6 Rare, Threatened, and Endangered Species.....	3-8
Section 4.0: Environmental Consequences	4-1
4.1 Introduction	4-1
4.2 Air Quality.....	4-1
4.2.1 Proposed Action.....	4-1
4.2.2 No Action	4-1
4.3 Noise	4-1
4.3.1 Proposed Action.....	4-1
4.3.2 No Action	4-2
4.4 Water Resources	4-3
4.4.1 Proposed Action.....	4-3
4.4.2 No Action	4-3
4.5 Biological Resources.....	4-3
4.5.1 Proposed Action.....	4-3
4.5.2 No Action	4-5
4.6 Summary of Cumulative Effects.....	4-5
4.7 Summary of Mitigation Measures.....	4-6
Section 5.0: Findings and Conclusions	5-1
Section 6.0: References.....	6-1
Section 7.0: Persons Consulted	7-1

Section 8.0: Distribution List	8-1
---	-----

Section 9.0: List of Preparers	9-1
---	-----

APPENDICES

Appendix A Scoping Letter, Distribution List, and Responses	A-1
Appendix B Sediment Sampling Results	B-1
Appendix C Consultation Letters and Responses	C-1
Appendix D Coastal Zone Consistency Determination.....	D-1
Appendix E Bird Species at Fort Eustis	E-1
Appendix F Fish Species at Fort Eustis.....	F-1
Appendix G Essential Fish Habitat (EFH) Assessment	G-1
Appendix H Record of Non-Applicability (RONA) and Air Quality Model	H-1

ACRONYMS AND ABBREVIATIONS	Fold out page at end of document
---	----------------------------------

TABLES

Table ES-1 Summary of Effects for the Proposed Action.....	ES-3
Table ES-2 Summary of Mitigation Measures	ES-4
Table 4-1 Construction Equipment Noise Emission Levels	4-2
Table 5-1 Summary of Effects for the Proposed Action	5-2
Table 5-2 Summary of Mitigation Measures	5-3

FIGURES

Figure 2-1 Location Map.....	2-2
Figure 2-2 Installation Map.....	2-3

SECTION 1.0

PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 BACKGROUND

The 7th Transportation Group (Composite), an assigned tenant element of the U.S. Army Transportation Center Fort Eustis (USATCFE), maintains a harbor complex at the Third Port at Fort Eustis, Virginia, on the James River at the mouth of Skiffes Creek. The Third Port is a deep-water port used to train personnel in cargo logistics and vessel operations. The facility provides a safe harbor for the 7th Group's watercraft fleet and serves as a deployment platform for Army units. In addition, it is a joint service training facility for watercraft operators and cargo handlers. There are 62 vessels assigned to the Third Port.¹ Commercial vessels that access two industrial complexes located upstream also use Skiffes Creek.

The U.S. Maritime Administration (MARAD) maintains a small support facility at Fort Eustis in order to maintain the James River Reserve Fleet in a stand-by status. The James River Reserve Fleet is moored in the James River approximately 2 miles from the Fort Eustis shoreline. The MARAD Facility Access Channel is used solely by MARAD.

MARAD is a cooperating agency in the preparation of this document and is participating in the funding of this project.

1.2 PURPOSE AND NEED

The Army and MARAD propose to conduct maintenance dredging for two unconnected but neighboring navigation channels accessing facilities on the eastern shoreline of the James River. The Army also proposes to expand the capacity of the Fort Eustis Dredged Material Management Area (FEDMMA) to accommodate disposal of the dredged material. The purpose of the proposed action is to provide adequate access for vessels using the Third Port and servicing the James River Reserve Fleet, and to accommodate the volume of dredged material to be disposed of during this and foreseeable future dredging operations. Implementation of the proposed action would support the Army's need to maintain its capability to conduct Army and joint Logistics Over The Shore (LOTS) operations. This capability can be achieved only by developing and maintaining soldiers' proficiency in the port activities of loading and unloading military

¹ Among vessels assigned to the Third Port are 11 tug boats (ranging in size from 86 feet to 128 feet in length), 3 Logistics Support Vessels (274 feet), 16 Landing Utility Craft 2000 (174 feet), Landing Utility Craft 1600 (135 feet),

equipment and supplies from oceangoing ships. Implementation of this action would also support the MARAD's mission to maintain the James River Reserve Fleet in a 30-day stand-by status for use in the event of a national mobilization for war.

Current soundings in Skiffes Creek indicate the channel leading to the Third Port and its main pier has silted-in in some locations. Vessels are subject to running aground, hampering navigation. Vessels utilized by the 7th Group use seawater to cool the engines and transfer power from bow thrusters. With the current shallow depths, these vessels are drawing silt and muck into these systems resulting in increased maintenance, repairs and downtime for the larger vessels. Because of the shoaling the existing channel width will not allow large vessels to enter and exit the channel simultaneously, thus increasing the time associated with contingency deployments.

The MARAD Facility Access Channel has not been dredged since 1968, and the channel and turning basins have become critically shoaled. Frequent use by the MARAD's tug fleet has caused the channel to stabilize somewhat, but controlling depths are less than -8 feet mean lower low water (MLLW) in many areas. In order to meet the present and future needs of MARAD's tug fleet, it is necessary to dredge the channel to a depth of -12 feet MLLW, plus 2 feet for advance maintenance and over depth, for a total dredging depth of -14 feet MLLW. MARAD has no other property on Fort Eustis on which to dispose of the material dredged from the MARAD Facility Access Channel.

In order for the FEDMMA (the Army's preferred dredged material disposal site) to accommodate materials dredged from Skiffes Creek and the MARAD Channel, it will be necessary to expand the capacity of the FEDMMA. Currently, the older section of FEDMMA has no additional capacity, and the newer section has capacity for only 120,000 cubic yards of additional dredged material. Since the majority of the surrounding land is wetland, the FEDMMA dikes would need to be raised to avoid increasing the approximately 80-acre footprint of the site.

1.3 SCOPE

The EA identifies, documents, and evaluates the potential environmental effects of implementing the proposed action and alternatives at Skiffes Creek, the MARAD Facility Access Channel, and the FEDMMA.

Landing Craft Mechanized (73 feet), 100-ton Barge Cranes (140 feet), a Floating Machine Shop (250 feet), and various other craft.

An interdisciplinary team has reviewed the proposed action in light of existing conditions and identified relevant beneficial and adverse effects associated with the action. The EA focuses on effects that could occur within the project area, which generally consists of the channel sites, the FEDMMA, and their immediate environs. The document analyzes direct effects (those caused by the proposed action and occurring at the same time and place) and indirect effects (those caused by the proposed action and occurring later in time or farther removed in distance but still reasonably foreseeable). The potential for cumulative effects is also addressed, and mitigation measures are identified where appropriate.

1.4 PUBLIC INVOLVEMENT

Public comment on the Army's proposed action was solicited through a scoping letter distributed to Federal, state, and local agencies and citizens groups. Appendix A contains a copy of the scoping letter, the distribution list, and the responses received.

Army Regulation 200-2, *Environmental Effects of Army Actions*, provides guidance for public participation in the NEPA process. If the EA concludes that the proposed action would not result in significant environmental effects, Fort Eustis will issue a draft Finding of No Significant Impact (FNSI). Fort Eustis will then observe a 30-day period during which agencies and the public may submit comments on the proposed action, the EA, or the draft FNSI. Upon consideration of any comments received from the public or agencies, Fort Eustis may approve the FNSI and implement the proposed the action. Should the Army determine that a FNSI is not appropriate because the proposed action would result in significant impact, the Army may modify the proposed action, issue a Notice of Intent to prepare an Environmental Impact Statement, or take no action.

1.5 FRAMEWORK FOR DECISION MAKING

Several relevant statutes, implementing regulations, and Executive Orders establish standards and provide guidance on environmental and natural resources management and planning. These include, but are not limited to, the Clean Air Act (CAA); Clean Water Act; Noise Control Act; Endangered Species Act; National Historic Preservation Act; Archaeological Resources Act; Comprehensive Environmental Response, Compensation, and Liability Act; Resource Conservation and Recovery Act; Toxic Substances Control Act; Executive Order 11988 (*Floodplain Management*); Executive Order 11990 (*Protection of Wetlands*); Executive Order 12088 (*Federal Compliance with Pollution Control Standards*); Executive Order 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income*

Populations); Executive Order 13045 (*Protection of Children from Environmental Health Risks and Safety Risks*); and Executive Order 13175 (*Consultation and Coordination with Indian Tribal Governments*). Where useful to better understanding, key provisions of some of these statutes and Executive Orders are described in more detail in the text of the EA.

SECTION 2.0

DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

2.1.1 Introduction

The Proposed Action is to dredge each of the two channels to a prescribed depth, width, and length and place the dredged material in the FEDMMA.

2.1.2 Project Sites

The Virginia Peninsula, extending into the Chesapeake Bay, is formed by the York River to the north and the James River to the south. Fort Eustis is on the south side of the peninsula. The cities of Newport News, Hampton, Poquoson, and Williamsburg are near the installation. Figure 2-1 shows the regional location of Fort Eustis.

The USATCFE occupies 8,228 acres fronting on the James River. The installation is flanked by two bodies of water flowing into the James River—Skiffes Creek to the northwest and Warwick River to the southeast. The Third Port is located in the northwest corner of Fort Eustis.

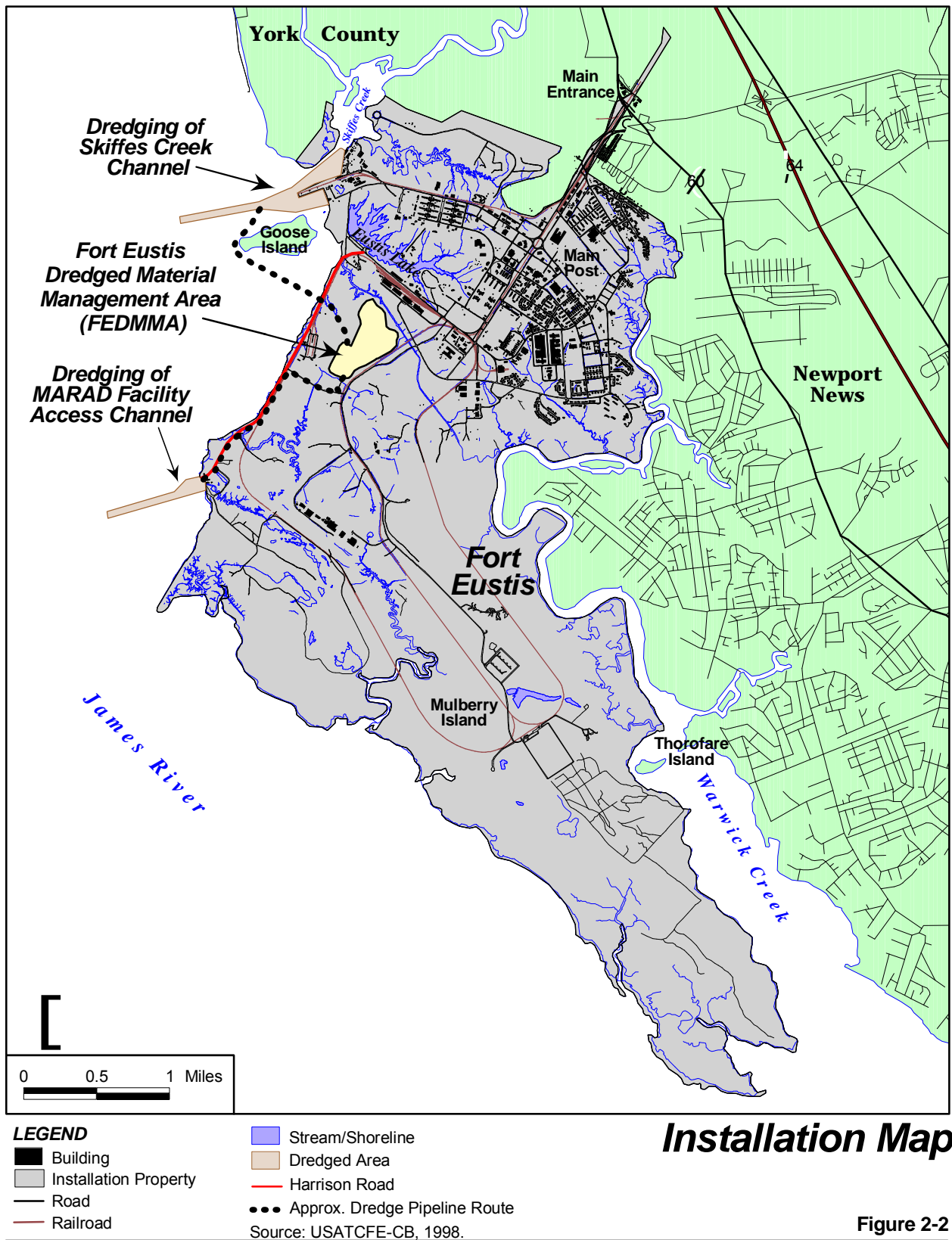
The MARAD maintains a small support facility on the western portion of Fort Eustis to service the James River Reserve Fleet that is moored in the James River, approximately 2 miles off the shoreline of Fort Eustis.

The FEDMMA is located on the western portion of Fort Eustis, south of the Third Port and north of the MARAD facility. Figure 2-2 shows the location of the FEDMMA and other project sites at Fort Eustis.



Location Map

Figure 2-1



2.1.3 *Dredging Activities*

Skiffes Creek Channel. The Skiffes Creek Channel would be dredged to an average depth of –16 feet MLLW (-11 feet MLLW to –17 feet MLLW) for a length of 8,300 feet from deep water in the James River into Skiffes Creek. This would include two turning basins, variable in width and 1,600 and 1,440 feet in length, with a depth of –15 MLLW. The estimated amount of dredged material is 500,000 cubic yards. The dredged material would be hydraulically pumped through a 16” pipeline, varying in length between 4,000 feet and 6,000 feet, depending on the distance to the FEDMMA. The pipeline would run (supported by floatation devices) over water to the shoreline, then cross Harrison Road and the adjacent wetlands and into the FEDMMA. A temporary ramp would be built over the pipeline allowing vehicles continued use of Harrison Road (Figure 2-2).

MARAD Facility Access Channel. The MARAD Facility Access Channel would be dredged to a depth of –14 feet MLLW for a length of 2,800 feet, running perpendicular to the James River Channel and terminating upstream at an included turning basin 1,000 feet in length with a variable width, no greater than approximately 420 feet. The estimated amount of dredged material is 180,000 cubic yards. The dredged material would be hydraulically pumped through a 16” pipeline, approximately 20,000 feet long. The pipeline would run (supported by floatation devices) over water to the shoreline, then cross Harrison Road and the adjacent wetlands and into the FEDMMA. A temporary ramp would be built over the pipeline allowing vehicles continued use of Harrison Road (Figure 2-2).

2.1.4 *FEDMMA Expansion*

Prior to the dredging of either Skiffes Creek Channel or the MARAD Facility Access Channel, the FEDMMA would be vertically expanded by raising the dike walls, currently 20 feet m.s.l. in the older section and 25 feet m.s.l. in the newer section, to a minimum height of 30 feet m.s.l. This would be accomplished by using the dried dredged material inside the FEDMMA from previous dredging as the source material for the raised dike walls. The outside footprint of the FEDMMA would remain unchanged. The expanded capacity would be 1.3 million cubic yards, enough to accommodate the dredged material from these two channels and an additional 27,000 cubic yards to be dredged as part of the Third Port Main Pier Replacement Project (Tetra Tech, 2002).

Dredged material placed in the FEDMMA, would be allowed to settle and excess water decanted over an outlet box that drains into Milstead Island Creek.

The 80-acre FEDMMA site is immediately adjacent to a small holding area containing a heating oil/sludge mixture, residue from a 1979 spill of 5,000 gallons of heating oil. The holding area is a National Priority List (NPL) site and is managed in accordance with the provisions of the Comprehensive Environmental Response, Compensation and Liabilities Act (CERCLA). One side of that berm would be raised as part of the FEDMMA expansion without disturbance of the sludge mixture holding area. The selected remedial action, as specified in the October 2002 Record of Decision for Site 11C – Oil/Sludge Holding Pond, includes the excavation and off site disposal of approximately 50 cubic yards of buried sludge and contaminated soil from the site. The Remedial Action is scheduled to be completed during FY03.

2.1.5 *Dredged Materials Assessments*

In 1975 the Commonwealth of Virginia revealed that lower portions of the James River had become contaminated with Kepone.¹ Based on subsequent testing (Environmental Testing Services, 1987) Kepone levels in both Skiffes Creek and the FEDMMA were found to be less than 0.015 µg/g. This is well below the Food and Drug Administration (FDA) action level of 0.3 µg/g. Undisturbed sediments in Skiffes Creek were sampled by IMS Environmental Services of Chesapeake, Virginia in April 2002 and detected no Kepone. Based on prior sediment testing (Environmental Testing Services, 1987 and IMS Environmental Services, 2002) there is no reason to believe sediments that would be dredged in Skiffes Creek contain contaminants at levels that would require special handling or disposal.

Because the MARAD Facility Access Channel has not been dredged since 1968, as a safeguard, the U.S. Army Corps of Engineers, Norfolk District sampled the sediment that would be dredged from this channel on November 19, 2002. The analytical results of this sampling, which detected no Kepone, are included in this EA.

2.1.6 *Project Schedule*

Dredging and dike renovation activities would take approximately 1 year.

¹ Kepone is the trade name of chlordecone, a chlorinated hydrocarbon insecticide. First introduced in 1958, Kepone was used until 1978. In 1975 the Virginia State Health Department ordered termination of production by the sole manufacturer when several workers developed serious neurological disorders. Kepone is no longer used or produced in the United States.

2.2 ALTERNATIVES

2.2.1 Introduction

The Army has considered three alternatives.

- **No Action.** No Action would involve the continuation of existing conditions of the affected environment, without implementation of the proposed action or other alternative, (i.e., no dredging of either channel and no disposal of dredged material). The no action alternative is described in Section 2.2.2 below.
- **Proposed Action.** The Army and MARAD preferred alternative is the proposed action as described in section 2.1 above.
- **Alternative Disposal Sites.** Under this alternative the two channels would be dredged with material disposed of in one or more of three alternate locations: Craney Island, the James River (overboard disposal), or at another site on Fort Eustis. The reasonableness and feasibility of using these alternative locations are discussed in section 2.2.3 below.

2.2.2 No Action Alternative

The Council on Environmental Quality (CEQ) regulations prescribe consideration of a no action alternative. This alternative also serves as a baseline against which the impacts of the proposed action and other alternatives considered can be evaluated. Under the no action alternative, the Army would not dredge the two channels and expansion of the FEDMMA would not take place. Discontinued maintenance of the two channels would result in the continued reduction in their operational depth. Eventually the channels would reach hydrodynamic equilibrium as determined by the tidal and fluvial currents of Skiffes Creek and the James River. This depth would approximate the adjacent bathymetry of the James River and would not be adequate for accomplishment of the Fort Eustis mission or for MARAD to fulfill its stand-by mobilization function. The no action alternative is evaluated in detail in Section 4.0 of this EA.

2.2.3 Alternative Disposal Sites

Craney Island

Under this alternative, the Army would dispose of the dredged material in the Craney Island Disposal Facility located in the southern portion of the Chesapeake Bay. This facility is used for the disposal of dredged material from dredging operations in the lower Chesapeake Bay, and is approximately 20 miles from the project site (Figure 2-1). In order to use this facility, the dredged

material would be placed in a barge, towed to Craney Island, and pumped from the barge into the disposal facility. This would increase dredging and material disposal costs by as much as 100 percent. More importantly, these channels are considered outside the Hampton Roads area and thus the dredged material is not eligible to be placed in Craney Island, per the Craney Island authorization documents. Because of these reasons, use of the Craney Island Disposal Facility is not considered feasible and is not examined further in this EA.

Overboard Disposal

Under this alternative, the Army would dump the dredged material into currently designated overboard areas of the James River. The impacts associated with overboard disposal would be similar to those resulting from dredging operations, except that the affected area would be larger since confinement is not technically feasible. The most obvious and most significant impact from overboard disposal would be direct burial and suffocation of benthic organisms. Numerous studies have shown that benthic organisms recover in 1-2 years after placement of dredged material. Overboard placement of dredged material in the James River occurs approximately every 5 years for material dredged from the nearby Tribell Shoal on the James River Federal Navigation Project. This designated overboard site does not have the capacity for the placement of any additional material from other project channels. Therefore, overboard disposal is not considered technically feasible and is not further evaluated in this EA.

Other Sites on Fort Eustis

Under this alternative, the Army would dispose of the dredged material at another upland location on Fort Eustis. An Environmental Assessment entitled “Maintenance Dredging, Skiffes Creek, Fort Eustis, Virginia”, prepared by the Norfolk District Corps of Engineers in August 1988, assessed the feasibility of disposing of the dredged material on the installation at the golf course, the horseback riding facility, and at training sites south of Back River Road. These alternative locations and others at Fort Eustis, previously studied by the U.S. Army Waterways Experiment Station (Miscellaneous Paper GL-87-2, July 1987) were again determined to be neither fiscally nor technically feasible nor compatible with the Fort Eustis mission or Master Plan, and therefore are not evaluated further in this EA. Both of the aforementioned documents are incorporated by reference into this EA.

SECTION 3.0:

AFFECTED ENVIRONMENT

3.1 INTRODUCTION

3.1.1 Overview

Consistent with guidance issued by the Council on Environmental Quality,¹ this is a “focused” EA. The Army has considered certain environmental resources and conditions and found that they would not be affected by the proposed action. These are identified below, and the reasons for their not being examined in detail are presented. The following sections address resources and conditions that are germane to the proposed action: air quality, noise, water resources, and biological resources. These environmental resources and conditions are fully evaluated for their potential environmental effects.

3.1.2 Resources Not Examined In Detail

The Army has considered the following environmental resources and conditions and, for the reasons provided, found them not germane to the proposed action.

Land Use. Maintenance dredging for the two channels and the associated raising of the dikes of the FEDMMA would not affect land use, as the channels and the FEDMMA would continue to operate as at present and adjacent uses would not change.

Geology and Soils. Dredging the two channels, raising the dikes of the FEDMMA, and placing of the dredge material in the FEDMMA would not alter the underlying geology or the soils of Fort Eustis.

Airspace. Management and control of airspace above the Skiffes Creek Channel, the MARAD Facility Access Channel, and the FEDMMA do not affect activities at these locations.

Transportation resources. While the two channels proposed to be dredged are elements of transportation resources, their dredging would not alter Fort Eustis, except for water routes, and

would only maintain existing transportation networks or systems. The continued use of the FEDMMA would not alter Fort Eustis or other transportation networks or systems.

Utilities. Maintenance dredging of the two channels and raising of the dikes of the FEDMMA would not affect utilities (e.g., potable water supply, sewer, energy sources, communications), as the existing channels and the FEDMMA do not pose demands on utilities.

Cultural resources. Consultation with the State Historic Preservation Office (SHPO) was initiated. A copy of the consultation letter sent to the SHPO is in Appendix C. Since the proposed action is maintenance dredging of channels previously dredged, the proposed action would not affect any known architectural or archeological resources listed in or eligible for the NRHP or Virginia Landmarks Register. If any issues are raised, they will be addressed as prescribed by Section 106 of the National Historic Preservation Act.

Socioeconomics. Maintenance dredging of the two channels and raising of the dikes of the FEDMMA would not affect population and would provide only a one-time boost to the economy of primarily the Hampton Roads area. As the counties in the vicinity of Fort Eustis have robust economies, the magnitude of effects would be of no measurable significance.

Environmental Justice. Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires that federal agencies' actions substantially affecting human health or the environment not exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin. Maintenance dredging of the two channels and raising of the dikes of the existing FEDMMA are not actions that would exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin.

Protection of Children. Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (April 21, 1997), recognizes that children might suffer disproportionately from environmental health risks and safety risks. Operational areas of the Skiffes Creek Channel, the MARAD Facility Access Channel, and the FEDMMA are within a secure, limited access area and, as such, children would not be exposed to environmental health or safety risks as a result of the proposed action.

¹ 40 CFR 1501.7(a)(3)

Solid Waste. Dredged materials would be placed within the FEDMMA and would not affect existing solid waste disposal at the site. Expansion of the FEDMMA would not generate solid waste. Construction to raise the dikes of the FEDMMA would use fill from within itself for the vertical expansion.

Hazardous and Toxic Materials. There are three potential sources of HM/HW with respect to the dredging project: toxic substances in the sediment to be dredged, hazardous materials and wastes from equipment and related operations during dredging and raising of the dikes, and HW leachate from the dredge material disposal site. Findings indicate, however, that HM/HW are not a concern with respect to this proposed action.

While dredging will resuspend sediment, contaminated sediment is not expected to be a concern for this project for reasons discussed in Section 2.1.5. HW leachate from existing disposal material at the dredge material disposal site has been sampled and was found not to be contaminated (Muller, 1998). Because the sediment from the Skiffes Creek Channel is not contaminated (as discussed in Section 2.1.5), new dredge material would not pose a HW problem. Because the MARAD Facility Access Channel has not been dredged since 1968, as a safeguard, the U.S. Army Corps of Engineers, Norfolk District tested sediments from this channel prior to the start of the dredging project and no Kepone was detected.

The Fort Eustis and Fort Story HWM SOP specifies the requirements for waste identification, storage, handling, transportation, disposal, emergency response, and waste minimization. The HWM SOP would be strictly adhered to during dredging and disposal of the dredge material. Based on these procedures, hazardous materials and wastes from equipment and other operations would not be a concern for this project.

3.2 AIR QUALITY

Fort Eustis lies in the Hampton Roads air pollution control region, which is currently considered a maintenance area for ozone (Major, 2002). This designation requires that annual air emissions for ozone precursors (nitrogen oxides [NO_x] and volatile organic compounds [VOC]) within the entire region fall below *de minimis* levels. De minimis levels are 100 ton/year NO_x and 100 ton/year VOC.

3.3 NOISE

For purposes of this document, noise is described in the context of sound levels that result directly from Fort Eustis construction and military operations and the compatibility of these levels with surrounding land uses. People residing in two single-family housing units located within 800 feet of Skiffes Creek Channel would be potential noise receptors during the proposed action. People working at the Third Port Facility, the MARAD Facility, and the golf course (located approximately 500 feet from the FEDMMA) would also be potential noise receptors.

3.4 WATER RESOURCES

3.4.1 Surface Waters

The surface waters in the vicinity of the project site are the marsh tributaries adjacent to the FEDMMA, Skiffes Creek, Bailey Creek, the James River (see Figure 2-2), and they are the only surface waters considered for the purposes of this document.

The James River is tidal along its boundary with Fort Eustis. Skiffes Creek flows for about 10 miles from its confluence with the James River at the Third Port at Fort Eustis. The lower portion of the creek is wide enough and deep enough (with periodic dredging) for the passage of commercial vessels and barges.

A consistency determination, in accordance with the Virginia Coastal Resources Management Program (VCRMP), has been prepared for the proposed action (Appendix D). Based on a review of Virginia's rules of coastal zone management, it has been determined that the proposed action is consistent with the long-term goals and policies of the VCRMP.

3.4.2 Storm Water Runoff

Storm water runoff on Fort Eustis is controlled and directed by storm sewers and drainage ditches. The storm water collection system discharges directly to the James and Warwick Rivers or to nearby creeks, lakes, and canals that discharge to the rivers (Malcolm Pirnie, 1998, cited in Tetra Tech, Inc., 1999).

3.4.3 Floodplains

Areas along the James River are prone to flooding. Water levels can rise significantly when a major storm event, such as a hurricane, backs up water in the James River at the same time that large amounts of rainfall occur. The flood of record at the installation is 15 feet, which occurred in 1958 (USACE, 1986, cited in Tetra Tech, Inc., 1999). Much of Mulberry Island lies below the 100-year flood level and is especially prone to minor tidal flooding (SAIC, 1996, cited in Tetra Tech, Inc., 1999). The mean tidal range in the area is 2.6 feet.

3.4.4 Ground Water

The Columbia Aquifer is the uppermost aquifer in the Fort Eustis area. The Columbia Aquifer is unconfined throughout most of its extent (Malcolm Pirnie, 1998, cited in Tetra Tech, Inc., 1999), and attains a maximum thickness of 35 feet, though it is generally 10 to 15 feet thick in the Fort Eustis Area (Meng and Harsh, 1988, cited in Montgomery Watson, 1997). Because the aquifer is unconfined, groundwater moves under the influence of gravity to discharge areas such as streams, rivers, and lakes. Groundwater flow is generally in a southeasterly direction. Recharge occurs primarily as infiltration of precipitation.

3.4.5 Water Quality

An assessment of contaminant levels in the surface waters of Fort Eustis was conducted in conjunction with an evaluation of the public health effects of contaminants at NPL sites. The conclusion of the assessment was that contaminant levels in surface waters at Fort Eustis were not sufficiently high to present a public health hazard.

Although Skiffes Creek and the James River are not part of Fort Eustis proper, water quality in these surface waters is of concern with respect to the proposed project because of the possibility of introducing contaminants—primarily suspended sediment—to one or both of these water bodies during dredging that would occur as part of the project. The most recent relevant water quality monitoring data for the James River (from the 1970s) and Skiffes Creek (from August 2001) indicated that water quality at both locations met Virginia standards for dissolved oxygen, total suspended solids, pH, and other criteria (VADEQ, 2001). Furthermore, studies conducted in the James River and Skiffes Creek indicate that these waterways have aquatic communities that are typical of similar habitats, other than an apparent shortage of large game fish (SAIC, 1996, cited

in Tetra Tech, Inc., 1999). This would indicate good water quality or, at worst, levels of contaminants that are not biologically significant.

3.5 BIOLOGICAL RESOURCES

3.5.1 Introduction

The U.S. Fish and Wildlife Service (USFWS); the Virginia Department of Game and Inland Fisheries; the National Marine Fisheries Service; the Virginia Marine Resources Commission; and the Department of Conservation and Recreation, were consulted regarding sensitive species and habitat issues at Fort Eustis. Copies of the letters sent and any responses received are in Appendix C.

3.5.2 Terrestrial Vegetation

Because of the artificial and altered nature of the FEDMMA and the area's specific purpose, impacts to any terrestrial vegetation that might incidentally be growing there and that would result from the placement of additional dredge material would not be considered ecologically significant.

3.5.3 Wetlands

More than 2,100 acres of tidal and nontidal wetlands are present on Fort Eustis, most of which are associated with the extensive estuarine ecosystem that surrounds much of the installation (Tetra Tech, Inc., 1999). Tidal estuarine emergent wetlands are found within 1 mile of the project site along the James River, Skiffes Creek, and Bailey Creek and surrounding Goose Island. Some palustrine-forested wetlands occur in the upper reaches of Skiffes Creek and Bailey Creek (Terwilliger Consulting, 1998).

Estuarine tidal marsh vegetation is predominantly black needlerush (*Juncus roemerianus*), saltmarsh cordgrass (*Spartina alterniflora*), big cordgrass (*Spartina cynosuroides*), saltmeadow cordgrass (*Spartina patens*), and cattails (*Typha sp.*). Bald cypress trees (*Taxodium distichum*) and black gum (*Nyssa sylvatica*) are typically found in forested wetlands.

3.5.4 Wildlife

Several common wildlife species have been reported from habitats around Lake Eustis, including great blue heron (*Ardea herodias*), osprey (*Pandion haliaetus*), raccoon (*Procyon lotor*), mallard (*Anas platyrhynchos*), and gray squirrel (*Sciurus carolinensis*) (Malcolm Pirnie, 1998, cited in Tetra Tech, Inc., 1999). These species are somewhat tolerant of human disturbance and are likely to be found elsewhere in the vicinity of the project site. Fort Eustis is also home to a successful breeding pair of bald eagles and other rare bird species. A list of bird species known from Fort Eustis is found in Appendix E. A fish survey was conducted on the installation in 1990 (Fort Eustis, 1990). Complete results of the fish survey are found in Appendix F.

The James River is an important breeding ground for economically important shellfish. American oysters (*Crassostrea virginica*) are found in the James River and its tributaries near Fort Eustis. Public and leased oyster grounds are present off Mulberry Island from Deep Water Shoals to the mouth of the James River, and covering about 15,700 acres. The beds are primarily to the southwest of Mulberry Island. Blue crabs (*Callinectes sapidus*) are found in tidal habitats and areas containing submerged aquatic vegetation in the James River and its tributaries. The James River ranks third in crab catch and revenue for Virginia. Contamination and loss of habitat, including wetlands and submerged aquatic vegetation, represent the threats to blue crabs in the James River (SAIC, 1996, cited in Tetra Tech, Inc., 1999). Striped bass (*Morone saxatilis*) have also been reported from the James River near the dredging sites.

3.5.5 Essential Fish Habitat

The James River Estuary is Essential Fish Habitat (EFH) for nine federally managed fish species: windowpane flounder (*Scopthalmus aquosus*), bluefish (*Pomatomus saltatrix*), Atlantic butterflyfish (*Peprilus triacanthus*), summer flounder (*Paralichthys dentatus*), black sea bass (*Centropristus striata*), king mackerel (*Scomberomorus cavalla*), spanish mackerel (*Scomberomorus maculatus*), cobia (*Rachycentron canadum*), red drum (*Sciaenops ocellatus*). An EFH Assessment was prepared for the Environmental Assessment to conduct maintenance dredging of the two channels and to vertically expand the FEDMMA to fulfill required consultation with the National Marine Fisheries Service mandated under the Magnuson-Stevens Fishery Conservation and Management Act. The EFH Assessment from that report is included in Appendix G.

3.5.6 *Rare, Threatened and Endangered Species*

An inventory of endangered, threatened, and rare animal species was conducted on Fort Eustis in 1995–1996 by the Virginia Department of Conservation and Recreation, Division of Natural Heritage (DCR-DNH, 1997). A total of three rare species and five species on the DCR-DNH animal watch list were recorded. Of the rare species, the tidewater interstitial amphipod (*Stygobromus araeus*), a federal species of concern and former Category 2 candidate, was documented on the installation for the first time. The bald eagle (*Haliaeetus leucocephalus*), which is both federally and state listed as threatened, and the great egret (*Ardea alba*), considered rare in Virginia, and the state threatened peregrine falcon (*Falco peregrinus*) have been observed during biological surveys of Fort Eustis. Two bald eagle nests, one active and another inactive as of 1999, are located in the Mulberry Island area of Fort Eustis (Terwilliger, 1999). Both nests are more than 1 mile south of the Skiffes Creek project site and of the MARAD Facility access channel, and are being managed with 0.25-mile buffer zones. Peregrine falcons have been observed nesting in a ship that is part of the James River Reserve Fleet (Tetra Tech, 1999). State special concern birds northern harrier (*Circus cyaneus*) and least tern (*Sterna antillarum*) have also been documented in the vicinity of Fort Eustis during the spring breeding season.

The Atlantic sturgeon (*Acipenser oxyrinchus*) has been observed in the James River near Skiffes Creek and the MARAD facility. Atlantic sturgeon is a federal species of concern and a species of state special concern in Virginia. In April and May Atlantic sturgeon make spawning runs from coastal waters through the Chesapeake Bay to reach freshwater tributaries. As recent as 1997, Atlantic sturgeon have been observed spawning in the James and York Rivers (Murdy, et al., 1997). Atlantic sturgeon are bottom dwellers, feeding on benthic mollusks, insects, and crustaceans. Juvenile Atlantic sturgeon can spend several years in brackish water before moving into coastal habitats.

The Virginia Division of Natural Heritage (VDNH) completed a rare plant inventory of Fort Eustis in 1994. Seven wetland plant species on the VDNH Watch List (those that have between 20 and 100 occurrences known) were identified on Fort Eustis (Tetra Tech, Inc., 1999). Of the seven plant species on the VDNH Watch List, only shadow witch, an orchid known from the Atlantic Coastal Plain, has the potential to occur within 1 mile of the Skiffes Creek Channel in wetlands adjacent Bailey Creek.

SECTION 4.0:

ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This section describes the environmental consequences of implementing the proposed dredging of Skiffes Creek and the MARAD Channel and the associated vertical expansion of the FEDMMA and the no action alternative. Cumulative effects resulting from the proposed action are discussed in Section 4.6. Recommended mitigation measures are discussed in Section 4.7.

4.2 AIR QUALITY

4.2.1 Proposed Action

Short-term direct minor adverse effects would be expected. Dike renovation and dredging activity, including the use of trucks and other heavy equipment, would emit minor amounts of NO_x, PM-10, CO, sulfur oxides, and VOC, but not at levels that would cause the area to exceed *de minimis* levels. Refer to the Record of Non-applicability (RONA) and the air quality model results in Appendix H. No indirect effects would be expected.

4.2.2 No Action

Long-term minor adverse effects would be expected. If Skiffes Creek is not able to accommodate the larger cargo ships, the cargo must be unloaded at the next available pier, which is located approximately 10 miles away. Shipping the cargo on land by way of trucks would increase mobile source emissions.

4.3 NOISE

4.3.1 Proposed Action

Short-term direct minor adverse effects would be anticipated during construction. The period of construction includes all necessary dredging and construction needed for the raising of the dikes. The use of heavy machinery would be required for this project, and increased levels of steady

noise and vibration from construction machinery would be expected. Table 4-1 illustrates typical construction equipment noise levels. Receptors closest to the noise source, as discussed in Section 3.3, would experience short-term increases in ambient noise levels. Even at the point in dredging operations where the machinery is at the closest proximity to receptors, noise levels are not expected to be a nuisance. In the short term, sensitive wildlife adjacent to dredging operations may relocate to similar nearby habitat until the project is completed.

4.3.2 No Action

No effects would be expected.

Table 4-1
Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level (dBA)¹ 50 feet from source
Backhoe	80
Ballast Equalizer	82
Ballast Tamper	83
Crane (Derrick)	88
Crane (Mobile)	83
Dozer	85
Grader	85
Roller	74
Truck	88

Source: Guidance Manual for Transit Noise and Vibration Impact Assessment, no date.

¹ dB is a unit used to express sound power levels where sound power level is the total acoustic output of a sound source in watts relative to the threshold of excellent youthful human hearing. dBA is "A" weighted sound level where a sound pressure level is weighted to approximate the same loudness response in an average listener, regardless of frequency, at the low sound pressure levels. This weighting provides reasonably good assessments of speech interference and community disturbance conditions.

4.4 WATER RESOURCES

4.4.1 Proposed Action

Short-term direct minor adverse effects would be expected. The surface waters of Skiffes Creek and the James River would be expected to have increased concentrations of suspended solids during the proposed dredging operation. IMS Environmental Services conducted sediment sampling and testing on undisturbed sediment in Skiffes Creek on April 1, 2002 and the sediment in the MARAD Channel on November 19, 2002. The results revealed only arsenic to be present in concentrations above the Industrial Risk-based Concentration, but it is difficult to predict from the test results what the surface water concentrations would be during dredging (see Appendix B for MARAD Channel results). Increasing the capacity of the FEDMMA is not expected to have any effect on groundwater. No effects to storm water or floodplains would be expected to occur.

4.4.2 No Action

No effects would be expected.

4.5 BIOLOGICAL RESOURCES

4.5.1 Proposed Action

Short-term direct minor adverse effects to aquatic wildlife would be expected. Dredging approximately 680,000 cubic yards of sediment to maintain the channels would be expected to have only short-term minor adverse effects on essential fish habitat and aquatic resources. These effects would be due to temporary increases in turbidity and the displacement of benthic macroinvertebrates such as worms, crabs, and mollusks in the path of the dredge (Muller, 1988). Environmental impacts would primarily result from dredging activities. The most obvious impact from dredging would be the direct destruction or displacement of benthic macroinvertebrates, i.e., worms, crabs, and mollusks, in the path of the dredge. Past studies have shown that recolonization of a deepened channel by benthic organisms may occur within 2 weeks to 2 years, depending on the time of year the dredging is accomplished, the availability of recruitment areas, and the depth of the dredged channel. Even though the original biomass may be attained in that period, recolonization is usually by opportunistic species, which are less valuable to the food

chain. Original species diversity is seldom attained and, consequently, the number of bottom-feeding fish seldom attains pre-dredging proportion or species diversity. The substrate type in the original channel may influence species diversity in the deepened channel. Decreased oxygen supply in and above the substrate may also influence species diversity (Muller, 1988).

Although the siphoning action of cutterhead type dredge produces minimal turbidity, during dredging the bottom sediments would be disturbed and a small percentage would be placed in suspension. When excessive, turbidity can reduce the penetration of light necessary for photosynthesis by phytoplankton and macrophytes, thus reducing the oxygen supply in the water column. Suspended sediment could cause adverse impacts on filter-feeding organisms. In filter feeders, heavy suspended sediment loads could cause abrasion of gill filaments, clogging of gills, impaired respiration, impaired feeding, reduced pumping rates, retarded egg development, and reduced growth and survival of larvae. Similar impacts could occur to zooplankton, larval fish, and larval blue crabs. These impacts would not readily affect adult fish because of their mobility. However, filter-feeding fish could be affected more than non-filter-feeding fish. Dredging could also result in chemical changes in the water column such as decreased dissolved oxygen levels due to increased oxygen demand resulting from resuspension of nutrients and sediments (Muller, 1988). Turbidity and siltation could adversely affect shellfish populations in the vicinity of the channel, but only within 500 feet of the dredge. These effects are considered short-term.

No direct adverse effects on terrestrial vegetation, wetlands, or wetland wildlife including globally declining amphibian populations would be expected from using the existing FEDMMA to store dredged sediment. Excess water in the FEDMMA would be removed through a standpipe and returned directly to the James River, leaving the hydrology of surrounding wetlands unaffected. Dredging and dike renovation activities would not affect any upland habitats or upland species either. The hydraulic dredge line from Skiffes Creek Channel to the FEDMMA would be routed around the western side of Goose Island, thereby avoiding potential adverse effects to state-owned wetlands. The hydraulic dredge line from the MARAD Channel to the FEDMMA would be routed through disturbed areas along existing Fort Eustis roads. If the dredge line would burst during operations, the line would be immediately shut down and repaired, preventing all but negligible sedimentation effects to Fort Eustis wetlands and James River wildlife.

Negligible direct adverse effects to terrestrial wildlife and rare, threatened, or endangered species would be expected. Skiffes creek and the MARAD channel are industrial areas that have seen over 50 years of constant boat traffic, engine noise, and other human disturbance. Fish and wildlife species that remain near Fort Eustis facilities are presumed to be habituated to noise and periodic disturbance. No effects from dredging to nesting bald eagles would be expected. Both nests are more than one mile away from the MARAD Facility and Skiffes Creek and would not be expected to be disturbed by the action. Bald eagles and many other birds raise their young in the spring. Fish species also migrate and spawn in the spring. Dredging restrictions in the James River to protect anadromous fish habitat from February 15th to June 30th would preclude activities that could disturb striped bass, Atlantic sturgeon, bald eagle, great egret, northern harrier, least tern, and other fish and birds during the spring breeding season. No effects to peregrine falcons nesting on ships parked in the James River Reserve Fleet would be expected because these ships would not move or be otherwise affected by dredging operations.

4.5.2 No Action

No effects would be expected.

4.6 CUMULATIVE EFFECTS

Cumulative effects are those that result from the incremental effects of an action when considering past, present, and reasonable foreseeable actions, regardless of the agencies or parties involved. Cumulative effects can result from individually minor but collectively significant factors taking place over time as they may relate to the entire installation and the ROI. Following is a listing of cumulative effects by resource area that would be expected to occur.

Air Quality. No cumulative effects would be expected.

Noise. No cumulative effects would be expected.

Water Resources. No cumulative effects would be expected.

Biological Resources. Minor beneficial cumulative effects to aquatic resources would result from removing approximately 680,000 cubic yards of sediment.

4.7 MITIGATION MEASURES

The Army could implement the mitigation measures described here to avoid, reduce, or compensate for adverse effects that might occur as a result of implementing the proposed action. Mitigation measures would not be required for the no action alternative. The U.S. Army Corps of Engineers, Norfolk District, would have the overall responsibility for implementing mitigation measures.

Air Quality

- Water or chemicals would be used to control dust during dike renovations (Virginia State Air Pollution Control Board, 1985).

Noise

- Dike renovation activities would be limited to daylight hours only.

Water Resources

- During dike renovation and dredging, project personnel would ensure that work areas are securely covered with tarps whenever the possibility of rain is forecast to ensure that no spilled POL, other potentially polluting substances used during the project, or debris from the project are washed into surface waters or directed to groundwater.
- To prevent runoff and sediment loading to surface waters, erosion control during dike renovation activities could include silt fences, straw bale dikes, diversion ditches, riprap channels, water bars, and water spreaders.
- If water quality levels were not met at the placement site discharge point, dredging would be suspended until conditions were corrected.
- Standard operating procedures for the prevention of spills and contingency operations in the event of a spill are in place and would be employed. Established BMPs on fuel handling would be used to reduce or eliminate the likelihood of a spill. Spill response capabilities would be available at the dredging sites to address any accidental spills or discharges, and could be deployed to any sites along the channels to be dredged. Spill

response capabilities would also be available at MARAD or other facilities in the Hampton Roads area. Installation spill response assets also exist and all spills/discharges will be reported immediately to the Fort Eustis Fire and Emergency Services Division.

Biological Resources

- Any wetlands disturbed by the hydraulic dredge line would be repaired.
- Any additional protective measures will be identified by the agency response to this NEPA document and by the Commonwealth of Virginia through their Virginia Water Protection Permit.

SECTION 5.0:

FINDINGS AND CONCLUSIONS

The physical environments at Fort Eustis would not be significantly affected by proceeding with the dredging and dike renovation project. Implementation of the proposed action would result in short-term minor adverse effects on the environmental resource areas examined in the EA. Table 5-1 summarizes the level of environmental effect on each resource area that would likely result from implementation of the proposed action. The effects on the natural environment (air, noise, water resources, and biological resources) are expected to be minor and adverse. No adverse or beneficial effects would result from the no action alternative.

RECOMMENDATION

Because no significant environmental impacts would be expected to result from implementation of the proposed action, preparation of an Environmental Impact Statement is not required. Implementation of the mitigation measures described in Table 5-2 is recommended. Preparation of a FNSI is appropriate.

Table 5-1
Summary of Effects for the Proposed Action

Resource Area	Direct Effects	Indirect Effects	Cumulative Effects
Air Quality	Short-term minor adverse	No effects	No effects
Noise	Short-term minor adverse	No effects	No effects
Water Resources	Short-term minor adverse	No effects	No effects
Biological Resources	Short-term minor adverse to essential fish habitat and aquatic resources	No effects	Short-term minor adverse

Table 5-2
Summary of Mitigation Measures

Mitigation Measure	Implementing Organization
<i>Air Quality</i>	
<ul style="list-style-type: none"> Water or chemicals would be used to control dust during dike renovations. 	USACE, Norfolk District
<i>Noise</i>	
<ul style="list-style-type: none"> Dike renovation activities would be limited to daylight hours. 	USACE, Norfolk District
<i>Water Resources</i>	
<ul style="list-style-type: none"> During dike renovation and dredging, project personnel would ensure that the project site work areas would be securely covered with tarps whenever the possibility of rain is forecast to ensure that no spilled POL, other potentially polluting substances used during the project, or debris from the project would be washed into surface waters or directed to groundwaters. 	USACE, Norfolk District
<ul style="list-style-type: none"> To prevent runoff and sediment loading to surface waters during dike renovations, erosion control would include silt fences, straw bale dikes, diversion ditches, riprap channels, water bars, and water spreaders. 	USACE, Norfolk District
<ul style="list-style-type: none"> If water quality standards were not met at the placement site discharge point, dredging would be suspended until conditions were corrected. 	USACE, Norfolk District
<ul style="list-style-type: none"> Standard operating procedures for the prevention of spills and contingency operations in the event of a spill are in place and would be employed. Established BMPs on fuel handling would be used to reduce or eliminate the likelihood of a spill. Spill response capabilities would be available at the dredging sites to address any accidental spills or discharges, and could be deployed to any sites along the channels to be dredged. Spill response capabilities would also be available at MARAD or other facilities in the Hampton Roads area. Installation spill response assets also exist and all spills/discharges will be reported immediately to the Fort Eustis Fire and Emergency Services Division. 	USACE, Norfolk District
<i>Biological Resources</i>	
<ul style="list-style-type: none"> Any wetlands disturbed by the hydraulic dredge line would be repaired. 	USACE, Norfolk District
<ul style="list-style-type: none"> Any additional protective measures will be identified by the agency response to this NEPA document and by the Commonwealth of Virginia through their Virginia Water Protection Permit. 	State of Virginia

SECTION 6.0:

REFERENCES

Agency for Toxic Substances and Disease Registry, Division of Health Assessment and Consultation (ATSDR). 1996. *Public Health Assessment, Fort Eustis (US Army), Newport News, Newport News County Virginia*, CERCLIS No. VA6210020321. <http://www.atsdr.cdc.gov/HAC/PHA/fteustis/fte_toc.html>. Accessed February 4, 2002.

ASTORE. 1992. *Master Plan Report for Fort Eustis, Newport News, Virginia*. Prepared for U.S. Army Corps of Engineers, Norfolk District, by ASTORE, Architects and Urban Designers, PC, Bethesda, Maryland.

Christensen, Timothy, U.S. Army Transportation Center, Fort Eustis, Virginia. 2002. Personal communication. March 31, 2002.

Department of Conservation and Recreation–Division of Natural Heritage (DCR-DNH). 1997. *A Natural Heritage Zoological Inventory of Fort Eustis, Virginia*. Natural Heritage Technical Report 97-14. October 1997.

Doumlele, Damon G., U.S. Army Transportation Center, Fort Eustis, Virginia. 1998. Personal communication. December 15, 1998.

Environmental Testing Services. 1987. *The Chemical Characterization of Sediment Cores from Dredge and Disposal Sites Located at Fort Eustis, Virginia*. Final report. Submitted to Langley and McDonald Engineering Consultants, Virginia Beach, Virginia, by Environmental Testing Services.

Fisher, D.J., M.E. Bender, and M.H. Roberts. 1983. Effects of Ingestion of Kepone-Contaminated Food by Juvenile Blue Crabs (*Callinectes sapidus* Rathbun). *Aquatic Toxicology* 4(1983):219-234.

Fort Eustis. 1990. *Fish Survey of Fort Eustis Waters*. U.S. Army Transportation Center at Fort Eustis, Virginia.

Fort Eustis. 2001a. *Fort Eustis Potable Water System. Attachment J02 Utility Privatization*. Fort Eustis, Virginia.

Fort Eustis. 2001b. *Fort Eustis Wastewater System. Attachment J02 Utility Privatization*. Fort Eustis, Virginia.

Fort Eustis Environmental and Natural Resources Division. 1998. *Environmental Assessment for Controlled Burn of Felker Army Airfield Approach Zones and Wildlife Management Areas Fort Eustis, Virginia*. Environmental and Natural Resources Division, U.S. Army Transportation Center at Fort Eustis, Virginia.

Fowler, Jack, William L. Hanks, and Tara Schreiner Holloway, "Skiffes Creek Dredged Material Disposal Area Alternatives, Fort Eustis, Virginia," Miscellaneous Paper No. GL-87-2, Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi, July 1987.

Gleason, H.A., and A. Cronquist. 1991. *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*. The New York Botanical Garden, Bronx, New York.

Goyette, D., and K.M. Brooks. 1998. *Creosote evaluation: Phase II Sooke Basin Study—Baseline to 535 Days Post Construction, 1995-1996*. Regional Program Report PR98-04. Creosote Evaluation Steering Committee, Environment Canada.

Guidance Manual for Transit Noise and Vibration Impact Assessment. No date. <http://www.nyc.gov/html/dos/pdf/swmp/feistext/ft_chp18.pdf>. Accessed February 28, 2002.

Haller, D.L. 1982. Demonstration of Advanced Dredging Technology, Dredging Contaminated Material (Kepone), James River, Virginia. In *Proceedings of the 6th U.S./Japan Experts Meeting: Management of Bottom Sediments Containing Toxic Substances*, 16-18 February 1981, Tokyo, Japan, ed. US Army Corps of Engineers, Water Resources Support Center, pages 38-49. <<http://elnt1.wes.army.mil/datafiles/h/haller.1982.a.html>>. Accessed February 17, 2002.

IMS Environmental Services. 2002. *Sediment Sampling Report, Third Port Pier, Fort Eustis, Newport News, Virginia*. Submitted to United States Army Corps of Engineers, Norfolk District. Prepared by IMS Environmental Services, Chesapeake, Virginia.

James River Association (JRA). 1995. James River Association: Preserving Virginia's River. <<http://www.jamesriverassociation.org>>. Accessed March 3, 2002.

Loesch, J.G., R.J. Huggett, and E.J. Foell. 1982. Kepone Concentration in Juvenile Anadromous Fishes. *Estuaries* 5(3):175-181.

Lunsford, C.A., and C.R. Blem. 1982. Annual Cycle of Kepone Residue and Lipid Content of the Estuarine Clam, *Rangia cuneata*. *Estuaries* 5(2):121-130.

Lunsford, C.A., M.P. Weinstein, and L. Scott. 1987. Uptake of Kepone by the Estuarine Bivalve *Rangia cuneata*, During the Dredging of Contaminated Sediments in the James River, Virginia. *Water Research* 21(4):411-416.

Mackenthun, K., M. Brossman, J. Kohler, and C. Terrell. 1978. Mitigation Feasibility for the Kepone-Contaminated James River, Virginia. In *Proceedings of 3rd U.S./Japan Experts Meeting: Management of Bottom Sediments Containing Toxic Substances*, November 1977, Easton, Maryland, ed. S.A. Peterson and K.K. Randolph, pages 153-182. U.S. Environmental Protection Agency, Environmental Research Laboratory, Corvallis, Oregon.

Major, Beth, Virginia Department of Environmental Quality. 2002. Personal communication. 4 March 4, 2002.

Malcolm Pirnie. 1998. *Draft Report Remedial Investigation*. Volume I (text, tables and figures). Eustis Lake, Fort Eustis, Virginia. Prepared for U.S. Army Corps of Engineers, Baltimore District, and U.S. Army Transportation Center, Fort Eustis. Cited in Tetra Tech, Inc., 1999.

Marine Chemist Service, Inc. 2001. *Asbestos survey of 3rd port pier, Fort Eustis, Newport News, Virginia*. Marine Chemist Service, Inc., Newport News, Virginia.

Montgomery Watson. 1997. *Fort Eustis, Virginia Final Remedial Investigation Report for Five States*. Volume 1 of 3 (Text). Prepared for Fort Eustis, Virginia, by Montgomery Watson, Wayne, Pennsylvania.

Morales-Alamo R. and Haven, D.S. 1983. Uptake of Kepone from sediment suspensions and subsequent loss by the oyster *Crassostrea virginica*. *Marine Biology* 74:187-201. Cited in Lunsford et al., 1987.

- Muller, R.J. 1988. *Environmental Assessment Maintenance Dredging Skiffes Creek, Fort Eustis, Virginia*. U.S. Army Corps of Engineers, Norfolk District, Norfolk, Virginia.
- Murdy, E.O., R.S. Birdsong, and J.A. Musick. 1997. *Fishes of the Chesapeake Bay*. Smithsonian Institution Press, Washington.
- Roberts, M.H., Jr., and R.E. Bendl. 1982. Acute Toxicity of Kepone to Selected Freshwater Fishes. *Estuaries* 5(3):158-164.
- Rogers, J.A., and H.T. Smith. 1995. Set-Back Distances to Protect Nesting Bird Colonies from Human Disturbance in Florida. *Conservation Biology* 9(1):89-99.
- Science Applications International Corporation (SAIC). 1996. *Environmental Assessment of the Master Plan and Ongoing Mission Activities, Fort Eustis, Virginia*. Final. Prepared for Environmental and Natural Resources Division, U.S. Army Transportation Center at Fort Eustis, Virginia, by SAIC, McLean, Virginia. Cited in Tetra Tech, Inc., 1999.
- Terwilliger Consulting. 1998. *Forest Inventory and Vegetative Assessment*. Terwilliger Consulting, Locustville, Virginia.
- Terwilliger, K.A. 1999. *Endangered Species Management Plan for the Bald Eagle (Haliaeetus leucocephalus)*. Prepared for U.S. Army Transportation Center, Fort Eustis, Virginia.
- Tetra Tech, Inc. 1999. *Integrated Natural Resources Management Plan, Fort Eustis, Virginia*. Prepared for U.S. Army Transportation Center Fort Eustis, Directorate of Public Works (ATZF-PWE) and U.S. Army Corps of Engineers, Norfolk District by Tetra Tech, Inc., Fairfax, Virginia. On file Fort Eustis, Newport News, Virginia.
- Tetra Tech, Inc. 2002. *Air Emissions Calculation and Tracking System II, v.1.1.0*. Tetra Tech, Inc., Fairfax, Virginia.
- Tetra Tech, Inc. 2002. *Environmental Assessment for the Replacement of the Main Pier at the Third Port Fort Eustis, Virginia*. Prepared for the U.S. Army Transportation Center Fort Eustis, directorate of Public works (ATZF-PWE) and U.S. Army Corps of Engineers, Norfolk District by Tetra Tech, Inc., Fairfax, Virginia.

United States Army Transportation Center, Fort Eustis (USATCFE). 1997. *Integrated Natural Resources Management Plan*. U.S. Army Transportation Center, Fort Eustis, Virginia.

United States Army Transportation Center, Fort Eustis (USATCFE) and United States Army Corps of Engineers, Baltimore District. October 2002. *Final Record of Decision for Site 11C – Oil/Sludge Holding Pond, Fort Eustis, Virginia*. U.S. Army Transportation Center, Fort Eustis, Virginia.

U.S. Environmental Protection Agency. 1997. *ToxFAQs for Creosote*. Agency for Toxic Substance and Disease Registry. <<http://www.atsdr.cdc.gov/toxfaq.html>>. Accessed February 17, 2002.

Versar. 1994. *Storm Water Pollution Prevention Plan for Fort Eustis, Virginia*. Prepared for U.S. Army Corps of Engineers, Norfolk District, by Versar, Inc., Springfield, Virginia.

Virginia Department of Environmental Quality (VADEQ). 2001. Virginia Department of Environmental Quality Home Page. <<http://www.deq.state.va.us/>>. Accessed March 3, 2002.

Virginia State Air Pollution Control Board. 1985. 9 VAC 5 Chapter 50, Part II, Article I, Section 90, Standard for Fugitive Dust/Emissions (9 VAC 5-50-90). <<http://www.deq.state.va.us/pdf/airregs/501.pdf>>. Accessed October 23, 2000.

SECTION 7.0:

PERSONS CONSULTED

Jones, Craig, USACE, Norfolk District. February 20, 2002.

Major, Beth, Virginia Department of Environmental Quality. March 4, 2002.

McCall, Steven, U.S. Army Transportation Center and Fort Eustis. February 19, 2002.

Wilcox, Thomas, Virginia Department of Game and Inland Fisheries. November 21, 2002.

SECTION 8.0:

DISTRIBUTION LIST

Mr. Richard E. Sanderson, Director
USEPA
Office of Federal Activities
401 M Street, SW
Washington, DC 20460

Ms. Karen DelGrosso
USEPA, Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

USEPA
Region 3
841 Chestnut Building
Philadelphia, PA 19107

Mr. David Cotingham, Director
NOAA
Ecology and Conservation District
14th and Constitution Avenue, NW
Washington, DC 20230

Mr. Eugene Crabtree
USDA, NRCS
310 Shea Drive, Building 3
Chesapeake, VA 23320

USGS
Water Resources Division
John W. Powell Federal Building
12201 Sunrise Valley Drive
Reston, VA 20192

Mr. John Paul Woodley, Jr.
Commonwealth of Virginia
Secretary of Natural Resources
799 9th Street Office Building
Richmond, VA 23219

Administrator
Council on the Environment
202 North Ninth Street
Suite 900
Richmond, VA 23219

Vice Admiral Roger T. Rufe, Jr.
Commander
United States Coast Guard
Atlantic Area, Fifth District
431 Crawford Street
Portsmouth, VA 23704

Virginia Department of Conservation and
Recreation
203 Governor Street, Suite 236
Richmond, VA 23219-2010

Mr. Asif Malik
Virginia Department of Health
Water Programs
1500 East Main Street
Room 109
Richmond, VA 23219

Mr. Arthur Collins
Executive Director
HRPDC
723 Woodlake Drive
Chesapeake, VA 23320

City of Newport News
Office of the City Manager
2400 Washington Avenue
Newport News, VA 23607

City of Newport News
Department of Planning and Development
2400 Washington Avenue
Newport News, VA 23607

City of Newport News
Department of Engineering
2400 Washington Avenue
Newport News, VA 23607

Director
Newport News Wetlands Board
Department of Planning and Development
2400 Washington Avenue
Newport News, VA 23607

Virginia Department of Health
Bureau of Toxic Substances
PO Box 2448
Room 124
Richmond, VA 23218

Mary Sherwood Holt
Chesapeake Bay Foundation
Lower Peninsula Chapter
7 River Road
Newport News, VA 23601

Ms. Ellie Irons
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, VA 23219

Mr. Kotur S. Narasimhan
Air Data Analysis Program
629 East Main Street, 8th Floor
Richmond, VA 23219

Mr. Tom Modena
Waste Division
629 East Main Street, 4th Floor
Richmond, VA 23219

Ms. Ellen Gilinsky
Virginia Water Protection Program
629 East Main Street, 9th Floor
Richmond, VA 23219

Ms. Sheri Kattan
Tidewater Regional Office
5636 Southern Boulevard
Virginia Beach, VA 23462

Mr. Frank Fulgham
Office of Plant & Pest Services
1100 Bank Street
Richmond, VA 23219

Mr. W. Douglas Beisch, Jr.
Chesapeake Bay Local Assistance
Department
101 North 14th Street, 17th Floor
Richmond, VA 23219

Mr. Derrel Jones
203 Governor Street
Richmond, VA 23219

Mr. Raymond T. Fernald
4010 West Broad Street
Richmond, VA 23230

Ms. Susan Douglas
Division of Water Supply Engineering
1500 East Main Street, Room 109
Richmond, VA 23219

Ms. Kathleen Kilpatrick
State Historic Preservation Officer
Virginia Department of Historic Resources
2801 Kensington Ave.
Richmond, VA 23221

Mr. Eugene K. Rader
Division of Mineral Resources
PO Box 3667
Charlottesville, VA 22903

Mr. Thomas Barnard, Jr.
Virginia Institute of Marine Science
Gloucester Point, VA 23602

Mr. Robert W. Grabb, Assistant
Commissioner
2600 Washington Avenue
Newport News, VA 23607

Ms. Karen Mayne
U.S. Fish and Wildlife Service
Division of Ecological Services
PO Box 99
Gloucester, VA 23061

Mr. Raymond T. Fernald
Virginia Department of Game and Inland
Fisheries
4010 West Broad Street
Richmond, VA 23230

SECTION 9.0:

LIST OF PREPARERS

John Beckman
M.E.M, Water and Air Resources, Duke University
B.A., Biology, University of California, Santa Cruz
Years of Experience: 5

Mike Betteker
M.S. Environmental Science and Engineering, Virginia Polytechnic Institute and State University
B.S. Biology, Florida Institute of Technology
Years of Experience: 23

Tom Delaney, P.E.
M.E.A., Engineering Administration, George Washington University
B.S., Environmental Engineering, Rensselaer Polytechnic Institute
Years of Experience: 30

Jennifer Jarvis
B.S., Environmental Resource Management, Virginia Polytechnic Institute and State University
Years of Experience: 3

Tom Magness
M.S., Geography, University of Wisconsin
B.S., Engineering, United States Military Academy
Years of Experience: 29

Martha Martin
B.A., English, Capital University
Years of Experience: 21

Richard Muller
M.S., Oceanography, Old Dominion University
B.A., Biology, Taylor University
Years of Experience: 30

Ryan Murley
M.S., Engineering and Environmental Geosciences, Radford University
B.S., Geology, Radford University
Years of Experience: 1

Sam Pett
M.S., Environmental Science, University of Massachusetts-Boston
B.S., Wildlife Biology/Zoology, Michigan State University
Years of Experience: 10

John Reba

B.S., Environmental Science, Virginia Polytechnic Institute and State University

Years of Experience: 2

Patrick Solomon

M.S., Geography, University of Tennessee

B.A., Geography, Geneseo State University

Years of Experience: 7

Paul Wilbur

J.D., Wayne State University Law School

B.A., English, University of Michigan

Years of Experience: 29

Appendix A

Scoping Letter, Distribution List, and Responses

24 September 2002

Programs and Management Division

SEE LIST OF ADDRESSES

Dear Sir or Madam:

The U.S. Army Transportation Center, Fort Eustis, and the U.S. Army Corps of Engineers, Norfolk District, are preparing an Environmental Assessment, on behalf of the Army and the U.S. Maritime Administration (MARAD), which will evaluate potential environmental effects associated with the proposed dredging of two unconnected but neighboring Federal navigation channels accessing facilities on the eastern shoreline of the James River, Virginia, and to vertically expand the Fort Eustis Dredged Material Management Area (FEDMMA) on Fort Eustis, Virginia.

The Army and MARAD propose to dredge the Skiffes Creek Channel to a depth of –16 feet MLLW (mean lower low water) for a length of 8,300 feet from deep water in the James River into Skiffes Creek, including two turning basins, variable in width and 1,600 and 1,440 feet in length, to a depth of –15 MLLW. The estimated yardage of dredged material to be disposed of is 450,000 cubic yards. The MARAD Facility Access Channel would be dredged to a depth of –12 feet MLLW for a length of 2,800 feet, running perpendicular to the James River Channel and terminating upstream at an included turning basin 1,000 feet in length and variable in width, no wider than approximately 420 feet. The estimated yardage of dredged material to be disposed of is 170,000 cubic yards. The FEDMMA would be vertically expanded by raising the dike walls to a minimum height of 35 feet, using the dried dredged material inside the FEDMMA from previous dredging as the source material for the dike raising. The outside footprint of the FEDMMA would remain unchanged.

To assist us in our evaluation of the project, please submit any comments or concerns you may have about the project by 25 October 2002. Please address all comments to: Mr. Richard Muller, U.S. Army Corps of Engineers, Norfolk District, Attn: CENAO-PL-R, 803 Front Street, Norfolk, VA 23510-1096 (Email: richard.j.muller@usace.army.mil). Your comments/concerns will be addressed in the Environmental Assessment that will be available for public comment in late November 2002.

If you need additional information please call me at (757) 441-7767. Thank you for your cooperation.

Sincerely,

Richard J. Muller

Ms. Ellie Irons
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, VA 23219

Mr. Richard E. Sanderson, Director
USEPA
Office of Federal Activities
401 M Street, SW
Washington, DC 20460

Ms. Karen DelGrosso
USEPA, Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

USEPA
Region 3
841 Chestnut Building
Philadelphia, PA 19107

Mr. David Cotingham, Director
NOAA
Ecology and Conservation District
14th and Constitution Avenue, NW
Washington, DC 20230

Mr. Eugene Crabtree
USDA, NRCS
310 Shea Drive, Building 3
Chesapeake, VA 23320

USGS
Water Resources Division
John W. Powell Federal Building
12201 Sunrise Valley Drive
Reston, VA 20192

Mr. John Paul Woodley, Jr.
Commonwealth of Virginia
Secretary of Natural Resources
799 9th Street Office Building
Richmond, VA 23219

Administrator
Council on the Environment
202 North Ninth Street
Suite 900
Richmond, VA 23219

Mr. Eugene K. Rader
Division of Mineral Resources
PO Box 3667
Charlottesville, VA 22903

Vice Admiral Roger T. Rufe, Jr.
Commander
United States Coast Guard
Atlantic Area, Fifth District
431 Crawford Street
Portsmouth, VA 23704

Virginia Department of Conservation and
Recreation
203 Governor Street, Suite 236
Richmond, VA 23219-2010

Mr. Asif Malik
Virginia Department of Health
Water Programs
1500 East Main Street
Room 109
Richmond, VA 23219

Mr. Arthur Collins
Executive Director
HRPDC
723 Woodlake Drive
Chesapeake, VA 23320

Mr. W. Douglas Beisch, Jr.
Chesapeake Bay Local Assistance
Department
805 East Broad Street
Suite 701
Richmond, VA 23219

Mr. Thomas Barnard, Jr.
Virginia Institute of Marine Science
Gloucester Point, VA 23602

City of Newport News
Office of the City Manager
2400 Washington Avenue
Newport News, VA 23607

City of Newport News
Department of Planning and Development
2400 Washington Avenue
Newport News, VA 23607

City of Newport News
Department of Engineering
2400 Washington Avenue
Newport News, VA 23607

Director
Newport News Wetlands Board
Department of Planning and Development
2400 Washington Avenue
Newport News, VA 23607

Virginia Department of Health
Bureau of Toxic Substances
PO Box 2448
Room 124
Richmond, VA 23218

Mary Sherwood Holt
Chesapeake Bay Foundation
Lower Peninsula Chapter
7 River Road
Newport News, VA 23601

Tarmac America, Inc.
Skiffes Creek Ready Mix
313 O'Hara Lane
Newport News, VA 23602

BASF Corporation
3340 West Norfolk Road
Portsmouth, VA 23703



COMMONWEALTH of VIRGINIA

Department of Mines, Minerals and Energy

Division of Mineral Resources

P.O. Box 3667

Charlottesville, Virginia 22903-0667

(434) 951-6340

9 October 2002

Mr. Richard Muller
U.S. Army Corps of Engineers, Norfolk District
Attn: CENAO-PL-R
803 Front Street
Norfolk, Virginia 23510-1096

Re: Proposed James River dredging operations and FEDMMA
Reply to letter of 26 September 2002

Dear Mr. Muller:

There are no obvious adverse effects to the geology or mineral resources in the areas that will be dredged or stockpiled. This Department has no further comments on the proposed project.

Sincerely,

A handwritten signature in cursive script, appearing to read "Gerald Wilkes".

Gerald Wilkes
Geologist Senior
DMME/DMR



SHEILA S. NOLL, CHAIRMAN • LOUIS R. JONES, VICE-CHAIRMAN • MYLES E. STANDISH, TREASURER

ARTHUR L. COLLINS, EXECUTIVE DIRECTOR/SECRETARY

October 11, 2002

CHESAPEAKE

Clarence V. Cuffee, *Acting City Manager*
Debbie Riller, *Council Member*
William E. Ward, *Mayor*

FRANKLIN

Mark S. Fethorolf, *Council Member*
Rowland L. Taylor, *City Manager*

GLOUCESTER COUNTY

John J. Adams, Sr., *Board Member*
William H. Whitley, *County Administrator*

HAMPTON

Memie E. Locke, *Mayor*
George E. Wallace, *City Manager*
Paige V. Washington, Jr., *Council Member*

ISLE OF WIGHT COUNTY

W. Douglas Caskey, *County Administrator*
Robert C. Claud, Sr., *Chairman*

JAMES CITY COUNTY

James G. Kennedy, *Chairman*
Sanford B. Wanner, *County Administrator*

NEWPORT NEWS

Charles C. Allen, *Vice-Mayor*
Joe S. Frank, *Mayor*
Edgar E. Maroney, *City Manager*

NORFOLK

Paul D. Fraim, *Mayor*
Daun S. Hester, *Council Member*
Regina V.K. Williams, *City Manager*
Barclay C. Winn, *Council Member*
W. Randy Wright, *Council Member*

POQUOSON

Charles W. Burgess, Jr., *City Manager*
Gordon C. Helsel, Jr., *Mayor*

PORTSMOUTH

J. Thomas Benn, III, *Council Member*
P. Ward Robinett, Jr., *Council Member*
Daniel M. Stuck, *City Manager*

SOUTHAMPTON COUNTY

Michael W. Johnson, *County Administrator*
Charleton W. Sykes, *Board Member*

SUFFOLK

Dana E. Dickens, III, *Council Member*
Myles E. Standish, *City Manager*

SURRY COUNTY

Ernest L. Bicorn, *Chairman*
Terry D. Lewis, *County Administrator*

VIRGINIA BEACH

Margaret L. Eure, *Council Member*
W. W. Harrison, Jr., *Council Member*
Louis R. Jones, *Council Member*
Robert C. Mandigo, Jr., *Council Member*
Meyera E. Oberndorf, *Mayor*
Nancy K. Parker, *Council Member*
James K. Spore, *City Manager*

WILLIAMSBURG

Jackson C. Tuttle, II, *City Manager*
Jeanne Zeidler, *Mayor*

YORK COUNTY

James O. McReynolds, *County Administrator*
Sheila S. Noll, *Board Member*

Mr. Richard Muller
U.S. Army Corps of Engineers
Norfolk District, Attn: CENAO-PL-R
803 Front Street
Norfolk, VA 23510-1096

Re: Environmental Assessment Scoping
Letter for Dredging and Expansion of
FEDMMA at Fort Eustis (ENV:GEN)

Dear Mr. Muller:

Pursuant to your request of September 26, 2002, the staff of the Hampton Roads Planning District Commission has reviewed the Environmental Assessment scoping letter regarding dredging and vertical expansion of the Fort Eustis Dredged Materials Management Area (FEDMMA). We have contacted the City of Newport News concerning the proposed project.

Based on the information presented in your letter, the City of Newport News requests that the following concerns be addressed in the Environmental Assessment:

- Potential for kepone and other heavy metals to be suspended in the water column for a period of time during the dredging process;
- Containment of pollutants to the area where dredging is occurring;
- Handling of contaminated dredge spoils during transfer to dredge spoil site; and
- Replacement of critical habitat areas disturbed during dredging.

We appreciate the opportunity to comment prior to the release of the Environmental Assessment. If you have any questions, please do not hesitate to call.

Sincerely,

Arthur L. Collins
Executive Director/Secretary

ALS:fh

Copy: Ms. Kathy James-Webb, NN



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

OCT 3 2 2002

Mr. Richard Muller
U.S. Army Corps of Engineers
Norfolk District
ATTN: CENAO-PL-R
803 Front Street
Norfolk, VA 23510-1096

Re: Dredging on the Eastern Shoreline of the James River, Virginia

Dear Mr. Muller:

In accordance with the National Environmental Policy Act and Section 309 of the Clean Air Act, we are responding to your invitation to provide written comments on the above referenced project. EPA understands that the Army proposes to dredge two unconnected but neighboring Federal navigation channels accessing facilities on the eastern shoreline of the James River, Virginia, and to vertically expand the Fort Eustis Dredged Material Management Area (FEDMMA) on Fort Eustis, Virginia.

More specifically, the Skiffes Creek Channel will be dredged to a depth of -16 feet MLLW for a length of 8,300 feet from deep water in the James River into Skiffes Creek, including two turning basins, variable in width and 1,600 and 1,440 feet in length, to a depth of -15 MLLW (estimated yardage of dredged material to be disposed of is 450,000 cubic yards). The MARAD Facility Access Channel would be dredged to a depth of -12 feet MLLW for a length of 2,800 feet (the estimated yardage of dredged material to be disposed of is 170,000 cubic yards). Considering the magnitude of the project, EPA suggests that the following suggestions be incorporated into the Environmental Assessment (EA) to assess the environmental effects of the proposed action.

As you are probably aware, dredging can create a whole host of adverse environmental impacts where the magnitude of the impact is contingent upon site-specific details. Impacts can be caused by the dredging process itself or by the fill which has been dredged. A major concern is the content of the fill. Dredging by definition disturbs and breaks up the substrate mobilizing substrate particles. If the substrate contains any kind of contaminant, the contaminant can potentially pose risks to the benthic and plant communities and the organisms that consume them



or can be transported to other areas. The amount of potential harm associated with dredging depends upon the amount and the type of constituent (e.g., lead, copper, etc.) and the communities at risk. The sediments to be dredged should be tested for contamination. If contaminants are present, further research should be conducted to understand the potential environmental effects of dredging specific to the contaminants identified.

A resource assessment within the dredging area and contiguous to it is necessary to determine effects to the biological/aquatic/biota communities. Dredging could result in the removal of benthic organisms; the destruction of habitat; possible release of oxygen-consuming substances that could lead to lowered levels of dissolved oxygen; possible release of nutrients (especially ammonia) that could increase the rate of phytoplankton production; possible release of metals and other toxic substances that could adversely affect the biota; short-term period of increased turbidity in water with fine sediments around the dredge, especially in the case of mechanical dredging, which could decrease visibility for fish.

Therefore, the EA should identify the location of any Submerged Aquatic Vegetation (SAV) beds and fisheries and shell fisheries resources found in the project area as well as identify any sensitive or high quality spawning areas. A location map identifying the above resources should be provided. In addition, the EA should describe the existing benthic environment of the project area. A complete species composition list (plants and animals) should be provided for the above-mentioned habitats. A description of the potential impacts to the migration or spawning activities of the animal species in the project area should be provided in the EA as well as proposed mitigation for the possible loss of this habitat.

A time of year restriction on dredging activities should be imposed to mitigate for environmental seasonal factors in addition to protecting aquatic and animal life. The National Marine Fishery Service and the U.S. Fish and Wildlife Service should be consulted on this issue.

Because it is proposed to vertically expand the dike walls of the FEDMMA to a minimum height of 35 feet, a sound engineering evaluation is necessary to ensure the stability of the dike. In addition, an engineering assessment on the retention times is necessary to ensure that the new structure will not have negative impacts on water quality standards.

Dredging equipment and techniques vary considerably in the United States. There must be compatibility between dredging equipment and the material excavated. We recommend that the EA contain information on the dredging equipment, the device used for excavation, and the type of pumping device to be used.

Dredging of a channel way may allow for an increase in ship traffic and usage by larger ships that draw more water. The types of shipping that may increase warrant scrutiny. The EA should provide the current and future uses of the channel served.

As a result of the dredging activity and the potential increase in traffic along the channels, an air quality assessment should be conducted to ensure compliance with National Ambient Air Quality Standards.

Since maintenance dredging is usually required, the EA should include a plan for addressing the possibility of maintenance dredging.

In closing, the above comments are not exclusive of what is required for the EA. However, they do provide a brief framework of environmental issues specific to the proposed action. Thank you for the opportunity to participate in this early evaluation effort of the scoping process. If you need additional assistance, the staff contact for this project is Karen DelGrosso; she can be reached at 215-814-2765.

Sincerely,

A handwritten signature in black ink, appearing to read "William Arguto", with a long horizontal stroke extending to the right.

William Arguto

NEPA/Federal Facilities Team Leader

Appendix B

Sediment Sampling Results

MARAD CHANNEL SEDIMENT INVESTIGATION

Maritime Administration Facilities
Fort Eustis, Virginia

IMS Project Number: 351-3359

Submitted To:

Mr. Marc Gutterman
United States Army Corps of Engineers, Norfolk District
GeoEnvironmental Section
803 Front Street
Norfolk, Virginia 23510
(757) 441-7669

Prepared By:

IMS Environmental Services
929 Professional Place
Chesapeake, VA 23320

Prepared By: _____

Robert Reali, P.E.
Project Manager

Reviewed by: _____

Robert W. May, P.G.
Senior Geologist

December 26, 2002

TABLE OF CONTENTS

1.0 INTRODUCTION.....	1
3.0 INVESTIGATIVE METHODS.....	1
4.0 INVESTIGATIVE RESULTS.....	2
4.1 Site Water Results.....	2
4.2 Analytes Total Results.....	3
4.2.1 Petroleum Hydrocarbons.....	3
4.2.2 Kepone	4
4.2.3 TCL-PAHs	4
4.2.4 TAL-Metals	5
4.2.5 BTEX.....	8
4.2.6 Total Residue as Percent Solids	8
4.3 Elutriate Sampling Results	8
4.3.1 Petroleum Hydrocarbons – Elutriate Method.....	8
4.3.2 Kepone– Elutriate Method	9
4.3.3 TCL-PAHs– Elutriate Method	9
4.3.4 TAL-Metals– Elutriate Method.....	9
5.0 CONCLUSIONS.....	10

TABLES

Table 1:	Vibratory Boring Descriptions
Table 2:	Sediment Analytical Summary: Petroleum Hydrocarbons
Table 3:	Sediment Analytical Summary: Kepone
Table 4:	Sediment Analytical Summary: TCL-PAH Constituents above Detection Limits
Table 5:	Sediment Analytical Summary: TAL-Metals Constituents above Detection Limits
Table 6:	Sediment Analytical Summary: Total Residue as Percent Solids
Table 7:	Elutriate Analytical Summary: Petroleum Hydrocarbons
Table 8:	Elutriate Analytical Summary: Kepone
Table 9:	Elutriate Analytical Summary: TAL-Metals Constituents above Detection Limits

FIGURES

Figure 1:	Portion of USGS Williamsburg Virginia topographic map illustrating the location and topography of site.
Figure 2:	Site map illustrating the locations of sediment borings.

APPENDICES

Appendix A:	Photodocumentation
Appendix B:	EPA Region III RBC Table
Appendix C:	Laboratory Analytical Results

1.0 INTRODUCTION

The United States Army Corps of Engineers (USACE) contracted IMS Environmental Services (IMS) to conduct a pre dredge sediment investigation in the 3,620 foot channel that extends from the U.S. Maritime Facilities (MARAD) to the National Defense Reserve Fleet (NDRF) site on the James River, Virginia. (Figure 1).

IMS evaluated the channel sediments with the intent of determining contamination prior to dredging and land application of the dredge spoils. The proposed dredging is expected to sufficiently deepen the channel to continue the capability of service boat traffic to the NDRF. The site location is illustrated in Figure 1. Vibracore sediment borings were performed at the locations indicated on Figure 2. Photodocumentation of the events performed are included as Appendix A.

This investigation delineates the background concentrations of the following parameters: target compound list-poly aromatic hydrocarbons (TCL-PAHs), target analyte list-metals (TAL-Metals), Benzene, Ethylbenzene, Toluene Xylene (BETX), Total Petroleum Hydrocarbons Diesel and Gasoline Range Organics (TPH DRO / GRO), Kepone and moisture content in the sediment of the channel bottom at the project site.

Elutriate samples were also collected during this investigation, in order to properly assess the impact of dredge material on the water column and on land application or beach replenishment. Elutriate analysis is simulated dredging in a laboratory environment. The elutriate laboratory method provides a more accurate representation of the leaching of chemical constituents from dredge material. Due to the volatile procedure of the elutriate method BETX, and TPH-GRO can not be analyzed with this method.

This sampling investigation uses Virginia Department of Environmental Quality (VDEQ) reporting guidelines, Average Sediment Concentration for the James River Basin and Environmental Protection Agency (EPA) Risk Based Concentrations (RBCs).

3.0 INVESTIGATIVE METHODS

IMS conducted site sampling in conjunction with EEA Incorporated (EEA) of Garden City, New York on November 19, 2002 utilizing a boat mounted Rossfelder P-1 electric and gas powered mechanical vibratory corer. IMS and EEA collected 4 sediment vibracore borings (SS-1 through SS-4) as shown in Figure 2. Appendix 1 contains photodocumentation of the sampling event.

The depths of the vibratory boring along with sample recovery interval, and a description of the sediment encountered is shown in Table 1.

Table 1: Vibratory Boring Descriptions

Sample ID	Water Depth (ft)	Core Barrel Push Depth (ft)	Core Recovery Interval (ft)	Sediment Description
SS-1	8	15	6	Dark Gray – Fine Silt
SS-2	6	15	7.5	Dark Gray - Fine Silt
SS-3	9	3	2	Medium Gray - Dense Fine Sands
SS-4	8	15	6	Dark Gray - Fine Silt

Sediment sample SS-3 encountered dense sands that the vibracore barrel could not penetrate. With SS-3 being almost at the mid point of the MARAD Facility and the NRDF, IMS suspects this to be an area of scour along the river bottom, with little of no soft sediments.

Sediment samples were composited by IMS personnel in the following manner:

For Total Analytes:

Sediment from the entire sample column of vibracore barrel was composited into one sample, SS-1. This procedure was repeated for each sediment sample (SS-2, SS-3, and SS-4) boring. Samples were shipped to STL and analyzed for TPH-DRO & GRO, BETX, TAL-Metals, Kepone, TCL-PAHs, and Moisture Content.

The sediment from the entire core of all four sediment samples (SS-1, SS-2, SS-3, and SS-4) was retained for two elutriate samples, which are discussed below. Sediment from each boring was composited in clean poly lined 5 gallon buckets and placed into clean glass sample containers.

For Elutriates:

One composite elutriate sample (Elutriate-1) was collected from the entire sample column of SS-1 and SS-2. A second sample (Elutriate-2) was collected from the entire sample column of SS-3 and SS-4. Three 1-gallon wide mouth glass jars were filled for each elutriate sample.

All samples were shipped to Severn Trent Laboratories (STL) to be analyzed for Kepone, TPH-DRO, TAL-Metals, and TCL-PAHs. Five 1-gallon glass amber jars of site water were also collected to be used in the elutriate extraction procedure.

4.0 INVESTIGATIVE RESULTS

4.1 Site Water Results

Site water is analyzed to determine any impact the water column may have when evaluating the elutriate samples. Site water was analyzed for TPH-DRO & GRO, BETX,

TAL-Metals, Kepone, and TCL-PAHs. Analytical results for this site water showed non detectable levels of TPH-DRO & GRO, BTEX, Kepone, and TCL-PAHs.

The only detectable levels in the site water were TAL-Metals, specifically, Aluminum, Calcium, Iron, Magnesium, Manganese, and Sodium. All of which are expected constituents for this surface water. Complete analytical results for Site Water attached as Appendix C.

4.2 Analytes Total Results

Samples of the sediment were analyzed for TPH-DRO & GRO, TAL-Metals, Kepone, TCL-PAHs, and Moisture Content. Summaries of those sample results are presented in the following sections. Complete sample results can be found in Appendix C.

4.2.1 Petroleum Hydrocarbons

Parameters for sediment analysis of petroleum hydrocarbon constituents are summarized in Table 2.

These values should be compared to the VDEQ reporting limit for TPH-DRO and GRO of 100 mg/kg, as it appears in 9 VAC 25-580.

As can be noted no sample is above that VDEQ limit. Levels are noted to decrease along the channel with the highest levels on the eastern end of the channel closest to the MARAD Bulkhead.

Table 2: Sediment Analytical Summary: Petroleum Hydrocarbons

Sample ID	Parameter	Result	RL	Units
SS-1	TPH-DRO	89	87	mg/kg
	TPH-GRO	2100	170	ug/kg
SS-2	TPH-DRO	30	23	mg/kg
	TPH-GRO	ND	230	ug/kg
SS-3	TPH-DRO	8.4 J	13	mg/kg
	TPH-GRO	ND	130	ug/kg
SS-4	TPH-DRO	6.0 J	22	mg/kg
	TPH-GRO	ND	220	ug/kg

RL – Laboratory Reporting Limit

J – Indicates an estimated concentration value below the Reporting Limit.

ND – Non Detectable Concentration

4.2.2 Kepone

The collected sediment samples were analyzed for Kepone. Kepone is a highly toxic pesticide ingredient that was discharged to the James River and persists in the sediments.

Although Kepone is prevalent in much of the James River, none of the analytical results were above detection limits for the samples collected for Kepone. Complete laboratory results for Kepone are included in Appendix C.

Table 3: Sediment Analytical Summary: Kepone

Sample ID	Parameter	Result	RL	Units
SS-1	Kepone	ND	1300	ug/kg
SS-2	Kepone	ND	1500	ug/kg
SS-3	Kepone	ND	1300	ug/kg
SS-4	Kepone	ND	1400	ug/kg

RL – Laboratory Reporting Limit

ND – Non Detectable Concentration

4.2.3 TCL-PAHs

Sediment samples were analyzed for TCL-PAH constituents. Analytical results that were reported above detection limits are summarized in Table 4. Individual analyte results that are below the reportable limit but were estimated by the laboratory are not presented in this summary.

Detectable concentrations were then compared to the EPA Region III Risk Based Concentration (RBC) table. A complete copy of the RBC table is included in Appendix B for reference. The comparison is made to RBC values for Sediment in an industrial setting. No samples exceeded the RBCs for each individual analyte. A complete list of PAH constituents and original laboratory results are included in Appendix C.

**Table 4: Sediment Analytical Summary: TCL-PAH Constituents
Above Detection Limits**

Sample ID	Parameter	Result	RL	RBC	Units
SS-1	Acenaphthylene	8.8	6.4	**	ug/kg
	Flourene	6.4	6.4	82,000,000	ug/kg
	Phenanthrene	18	6.4	**	ug/kg
	Anthracene	14	6.4	610,000,000	ug/kg
	Fluoranthene	100	6.4	82,000,000	ug/kg
	Pyrene	52	6.4	61,000,000	ug/kg
	Benzo(a)anthracene	30	6.4	7,800	ug/kg
	Chrysene	42	6.4	780,000	ug/kg
	Benzo(b)fluoranthene	63	6.4	780	ug/kg
	Benzo(a)pyrene	35	6.4	780	ug/kg
	Indeno(1,2,3-cd)pyrene	30	6.4	7,800	ug/kg
	Dibenzo(a,h)anthracene	13	6.4	**	ug/kg
	Benzo(g,h,i)perylene	35	6.4	**	ug/kg
SS-2	Phenanthrene	8.8	7.5	**	ug/kg
	Anthracene	8.3	7.5	610,000,000	ug/kg
	Fluoranthene	35	7.5	82,000,000	ug/kg
	Pyrene	19	7.5	61,000,000	ug/kg
	Benzo(a)anthracene	14	7.5	7,800	ug/kg
	Chrysene	21	7.5	780,000	ug/kg
	Benzo(b)fluoranthene	24	7.5	780	ug/kg
	Benzo(a)pyrene	15	7.5	780	ug/kg
	Indeno(1,2,3-cd)pyrene	12	7.5	7,800	ug/kg
	Benzo(g,h,i)perylene	14	7.5	**	ug/kg
SS-4	Fluoranthene	12	7.2	82,000,000	ug/kg
	Pyrene	12	7.2	61,000,000	ug/kg
	Chrysene	7.7		780,000	ug/kg
	Benzo(a)pyrene	8.7		780	ug/kg

RL – Laboratory Reporting Limit

RBCs – Risked Based Concentrations

** - No RBC is given for this analyte

4.2.4 TAL-Metals

Sediment samples were analyzed for TAL-Metal constituents. Analytical results reported near or above the detection limits for these samples are displayed in Table 5. Individual analyte results that are below the reportable limit but were estimated by the laboratory are not presented in this summary.

Detectable concentrations were then compared to the EPA Region III RBC table. This comparison is made to RBC values for sediment in an industrial setting. A comparison of the constituents listed in Table 5 are also made to average sediments metals

concentrations in the James River Basin as identified by the VDEQ in 2001. A complete list of TAL-Metals original laboratory results is included in Appendix C.

**Table 5: Sediment Analytical Summary: TAL-Metals Constituents
Above Detection Limits**

Sample ID	Parameter	Result	RL	RBC (Industrial)	Historical Sediment Metals Average James River Basin (VDEQ 2001)	Units
SS-1	Aluminum	4,420	19.2	2,000,000	29,601	mg/kg
	<i>Arsenic</i>	3.5	0.96	3.8	5.92²	mg/kg
	Barium	29.3	19.2	140,000	**	mg/kg
	Beryllium	0.71	0.38	4,100	5.00	mg/kg
	Calcium	836	480	**	**	mg/kg
	Chromium	14.1	0.48	6,100	34.54	mg/kg
	Copper	37.3 N	2.4	82,000	29.57	mg/kg
	Iron	14,800	9.6	610,000	40,924	mg/kg
	Potassium	709	480	**	**	mg/kg
	Magnesium	1,220	480	**	**	mg/kg
	Manganese	112	1.4	41,000	1,110	mg/kg
	¹ Mercury	0.14	0.032	**	0.12	mg/kg
	Sodium	1,740	480	**	**	mg/kg
	Nickel	9.4	3.8	41,000	21.47	mg/kg
	Lead	57.2 N	0.29	**	31.03	mg/kg
	Vanadium	49.3 N	4.8	14,000	**	mg/kg
	Zinc	115 N	1.9	610,000	125.10	mg/kg
SS-2	Aluminum	14,100	22.6	2,000,000	29,601	mg/kg
	<i>Arsenic</i>	7.5	1.1	3.8	5.92²	mg/kg
	Barium	66.4	22.6	140,000	**	mg/kg
	Beryllium	1.5	0.45	4,100	5.00	mg/kg
	Calcium	1330	565	**	**	mg/kg
	Cobalt	10.0	5.7	120,000	**	mg/kg
	Chromium	27.9	0.57	6,100	34.54	mg/kg
	Copper	32.5 N	2.8	82,000	29.57	mg/kg
	Iron	33,700	11.3	610,000	40,924	mg/kg
	Potassium	1,990	565	**	**	mg/kg
	Magnesium	3,320	565	**	**	mg/kg
	Manganese	484	1.7	41,000	1,110	mg/kg
	¹ Mercury	0.28	0.038	**	0.12	mg/kg
	Sodium	2,440	565	**	**	mg/kg
	Nickel	16.3	4.5	41,000	21.47	mg/kg
	Lead	40.6 N	0.34	**	31.03	mg/kg
	Thallium	2.7	1.1	5.5	5.00	mg/kg
	Vanadium	60.9 N	5.7	14,000	**	mg/kg
	Zinc	195 N	2.3	610,000	125.10	mg/kg

Table 5: Continued

Sample ID	Parameter	Result	RL	RBC (Industrial)	Historical Sediment Metals Average James River Basin (VDEQ 2001)	Units
SS-3	Aluminum	1,850	19.5	2,000,000	29,601	mg/kg
	<i>Arsenic</i>	<i>1.4</i>	<i>0.98</i>	<i>3.8</i>	<i>5.92²</i>	<i>mg/kg</i>
	Chromium	5.0	0.49	6,100	34.54	mg/kg
	Copper	4.1 N	2.4	82,000	29.57	mg/kg
	Iron	5,120	9.8	610,000	40,924	mg/kg
	Magnesium	584	488	**	**	mg/kg
	Manganese	72.9	1.5	41,000	1,110	mg/kg
	¹ Mercury	0.041	0.032	**	0.12	mg/kg
	Lead	6.0 N	0.29	**	31.03	mg/kg
	Sodium	1040	488	**	**	mg/kg
	Vanadium	10.3 N	4.9	14,000	**	mg/kg
	Zinc	27.5 N	2	610,000	125.10	mg/kg
SS-4	Aluminum	1820	21.7	2,000,000	29,601	mg/kg
	<i>Arsenic</i>	<i>8.9</i>	<i>1.1</i>	<i>3.8</i>	<i>5.92²</i>	<i>mg/kg</i>
	Barium	86.8	21.7	140,000	**	mg/kg
	Beryllium	1.7	0.43	4,100	5.00	mg/kg
	Calcium	1420	542	**	**	mg/kg
	Cadmium	0.55	0.54	1,000	1.01	mg/kg
	Cobalt	10.9	5.4	120,000	**	mg/kg
	Chromium	31.1	0.54	6,100	34.54	mg/kg
	Copper	30.3 N	2.7	82,000	29.57	mg/kg
	Iron	36,200	10.8	610,000	40,924	mg/kg
	Potassium	2,260	542	**	**	mg/kg
	Magnesium	3,580	542	**	**	mg/kg
	Manganese	785	1.6	41,000	1,110	mg/kg
	Sodium	2,700	542	**	**	mg/kg
	¹ Mercury	0.35	0.36	**	0.12	mg/kg
	Nickel	17.5	4.3	41,000	21.47	mg/kg
	Lead	40.2 N	0.33	**	31.03	mg/kg
	Thallium	2.3	1.1	5.5	5.00	mg/kg
	Vanadium	66.0 N	5.4	14,000	**	mg/kg
	Zinc	175 N		610,000	125.10	mg/kg

RL - Laboratory Reporting Limit

RBCs - Risked Based Concentrations

N - Spiked Analyte recovery is outside stated control limits

** - No level is issued for this analyte

¹ Mercury analyzed by Method SW 846 7471 (Cold Vapor)

²Standard deviation for the average arsenic level is 1.6

Arsenic was the only TAL-metal during this sampling investigation analyzed at levels above the RBCs levels. Arsenic was detected in sediment samples SS-2, and SS-4 above the industrial RBC level. These two samples were also above the average arsenic concentration as noted by historical sediment sampling, but not by an additional order of magnitude.

4.2.5 BTEX

Sediment samples were analyzed for BTEX constituents. All samples were reported as non-detectable concentrations for BTEX constituents. The laboratory analytical results are located in Appendix C.

4.2.6 Total Residue as Percent Solids

Sediment samples were also analyzed for Total Residue as Percent Solids. The analytical results are summarized in Table 6 below. Original laboratory results for Percent Solids is included in Appendix C.

Table 6: Sediment Analytical Summary: Total Residue as Percent Solids

Sample ID	Parameter	Result	Units
SS-1	Total Residue as % Solids	57.2	%
SS-2	Total Residue as % Solids	44.2	%
SS-5	Total Residue as % Solids	77.0	%
SS-6	Total Residue as % Solids	46.1	%

4.3 Elutriate Sampling Results

Sediment Samples SS-1 and SS-2 were composited into a sample labeled as Elutriate 1, while, SS-3 and SS-4 were composited into a sample labeled Elutriate 2. These elutriate samples were analyzed for all previously stated constituents with the exception of BTEX and TPH-GRO. Due to the volatility of these parameters, accurate results would not be achieved utilizing the elutriate procedure.

4.3.1 Petroleum Hydrocarbons – Elutriate Method

Elutriate samples selected for Petroleum Hydrocarbon Constituents are summarized in Table 7. The laboratory analytical results are located in Appendix C.

As shown in the previous section, the highest TPH-DRO Level was the eastern end of the channel closest to the MARAD Bulkhead.

Table 7: Elutriate Analytical Summary: Petroleum Hydrocarbons

Sample ID	Parameter	Result	RL	Units
ELUTRIATE-1 Composite of SS-1 and SS-2	TPH-DRO	850	100	ug/L
ELUTRIATE-2 Composite of SS-3 and SS-4	TPH-DRO	290	100	ug/L

RL – Laboratory Reporting Limit

4.3.2 Kepone– Elutriate Method

The Elutriate samples were also analyzed for Kepone. Elutriate samples selected for Kepone are summarized in Table 8. As shown in the previous section, none of the analytical results were above detection limits for the samples collected for Kepone. Complete lists of Kepone original laboratory results are included in Appendix C.

Table 8: Elutriate Analytical Summary: Kepone

Sample ID	Parameter	Result	RL	Units
ELUTRIATE-1 Composite of SS-1 and SS-2	Kepone	ND	80	ug/L
ELUTRIATE-2 Composite of SS-3 and SS-4	Kepone	ND	80	ug/L

RL – Laboratory Reporting Limit

ND – Non Detectable Concentration

4.3.3 TCL-PAHs– Elutriate Method

Elutriate samples were also analyzed for TCL-PAH constituents. No samples exceeded the RBCs for each individual analyte. A complete list of PAHs constituents and original laboratory results are included in Appendix C.

4.3.4 TAL-Metals– Elutriate Method

Elutriate samples were analyzed for TAL-Metal constituents. Analytical results reported near or above the detection limits for these samples are displayed in Table 9. Detectable concentrations were then compared to the VDEQ Water Quality Standards (WQS). This comparison is made to WQS values for waters for acute and chronic health criteria in aquatic life in freshwater environments, as well human health criteria for both public water systems and all other surface waters. A complete list of TAL-Metals original laboratory results is included in Appendix C.

**Table 9: Elutriate Analytical Summary: TAL-Metals Constituents
Above Detection Limits**

Sample ID	Parameter	Result	RL	Aquatic Life		Human Health		Units
				Freshwater		PWS	AOSW	
				Acute	Chronic			
ELUTRIATE-1 Composite of SS-1 and SS-2	Aluminum	947 E	200	**	**	**	**	ug/L
	Calcium	79,700	5,000	**	**	**	**	ug/L
	Iron	1350	100	**	**	300	**	ug/L
	Potassium	119,000	5,000	**	**	**	**	ug/L
	Magnesium	214,000	5,000	**	**	**	**	ug/L
	Manganese	603	15.0	**	**	50	**	ug/L
	Mercury	ND	0.20	2.4	0.012	0.052	0.053	ug/L
	Sodium	1,820,000	25,000	**	**	**	**	ug/L
	Thallium	10.6	10.0	**	**	**	**	ug/L
	Zinc	22.3	20.0	120	110	5000	**	ug/L
ELUTRIATE-2 Composite of SS-3 and SS-4	Aluminum	1240	200	**	**	**	**	ug/L
	Barium	208	200	**	**	2,000	**	ug/L
	Calcium	71,100	5,000	**	**	**	**	ug/L
	Iron	1,560	100	**	**	300	**	ug/L
	Potassium	123,000	5,000	**	**	**	**	ug/L
	Magnesium	213,000	5,000	**	**	**	**	ug/L
	Manganese	1000	15.0	**	**	50	**	ug/L
	Mercury	ND	0.20	2.4	0.012	0.052	0.053	ug/L
	Sodium	1,790,000	25,000	**	**	**	**	ug/L
	Lead	3.4	3.0	**	**	**	**	ug/L
	Thallium	12.8	10.0	**	**	**	**	ug/L
	Zinc	25.5	20.0	120	110	5000	**	ug/L

PWS - Public water supplies

AOSW - All other surface waters

E - Matrix Interference

** - No Level is issued for this Analyte

For the constituents where water quality criteria exist, none of the analyzed dissolved metals exceed those standards.

5.0 CONCLUSIONS

Arsenic, in SS-2 and SS-4, was the only TAL-Metal during this sampling investigation analyzed at levels above the RBC and above the historical sediments metals concentrations. However both sample were within the same order of magnitude. Detectable concentrations for the elutriate sediment samples (Table 9) were also compared to risk assessment values listed for parameters in freshwater environments used by humans as public water supplies, and all other bodies of surface water used by humans. These regulatory values are higher than the levels of the Metals detected in the sediment at the subject property.

Based on the analytical results listed in Table 3, TCL-PAHs constituents are present in the sediment. The TCL-PAHs concentrations detected in the sediment at the subject property are significantly less than the RBC values for sediment in an industrial setting.

The sediment samples were also analyzed for kepone. Based on the analytical results of the sediment samples, kepone was not detected in the sediment at the subject property.

Based on this investigation, TPH-DRO appears to be the only constituent of any concern. Levels of TPH-DRO / GRO have been detected but not above any VDEQ regulatory limit as detailed in 9 VAC 25-580, 1987. A majority of this contaminant is close in to the MARAD docks, and diminishes as the channel extends to toward the river.

Based on the information presented in this document, IMS feels that there are not any Hazardous and Toxic Waste issues at the proposed dredging location.

REFERENCES CITED

- Virginia Department of Environmental Quality
Historical Sediment Metals - James River Basin
<ftp://ftp.deq.state.va.us/pub/watqual/toxics/sm2.xls>
- U.S. Environmental Protection Agency
Risk Based Concentration Table
<http://www.epa.gov/reg3hwmd/risk/rbc1002.pdf>
- U.S.G.S. 7.5-Minute Topographic Map of the Williamsburg, Virginia Quadrangle.
Photorevised 1986. Scale 1:24,000.
- 9 VAC 25-580, 1987, Underground Storage Tanks: Technical Standards and Corrective Action Requirements.

FIGURES

APPENDIX A

Photodocumentation



Photo #1



Photo #2



Photo #3

Photo #1 Retrieval of Sediment Boring SS-1

Photo #2 Sediment Boring at SS-2

Photo #3 Sediment Boring at SS-3

APPENDIX B

EPA Region III RBC Table

APPENDIX C

Laboratory Analytical Results

Site Water Analytical Results

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: C2K210168 **IMS Environmental Services** PAGE 1
IMS Env James River Ghost Fle Date Reported: 12/18/02
Project Number: IMS ENV

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
-----------	--------	--------------------	-------	----------------------

Client Sample ID: SITE WATER

Sample #: 001 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: WATER

Trace Inductively Coupled Plasma (ICP) Metals

Reviewed

Silver	ND	5.0	ug/L	SW846 6010B
Aluminum	340	200	ug/L	SW846 6010B
Arsenic	ND	10.0	ug/L	SW846 6010B
Barium	83.8 B	200	ug/L	SW846 6010B
Beryllium	0.64 B	4.0	ug/L	SW846 6010B
Calcium	90000	5000	ug/L	SW846 6010B
Cadmium	ND	5.0	ug/L	SW846 6010B
Cobalt	ND	50.0	ug/L	SW846 6010B
Chromium	1.2 B	5.0	ug/L	SW846 6010B
Copper	2.7 B	25.0	ug/L	SW846 6010B
Iron	111	100	ug/L	SW846 6010B
Potassium	105000 E	5000	ug/L	SW846 6010B
Magnesium	222000	5000	ug/L	SW846 6010B
Manganese	17.2	15.0	ug/L	SW846 6010B
Sodium	1750000	25000	ug/L	SW846 6010B
Nickel	ND	40.0	ug/L	SW846 6010B
Lead	ND	3.0	ug/L	SW846 6010B
Antimony	ND	10.0	ug/L	SW846 6010B
Selenium	ND	5.0	ug/L	SW846 6010B
Thallium	ND	10.0	ug/L	SW846 6010B
Vanadium	5.3 B	50.0	ug/L	SW846 6010B
Zinc	10.3 B	20.0	ug/L	SW846 6010B

Mercury in Liquid Waste (Manual Cold-Vapor)

Reviewed

Mercury	ND	0.20	ug/L	SW846 7470A
---------	----	------	------	-------------

B Estimated result. Result is less than RL.

E Matrix interference.

Volatiles by GC

Reviewed

Benzene	ND	1.0	ug/L	SW846 8021B
Ethylbenzene	ND	1.0	ug/L	SW846 8021B
Toluene	ND	1.0	ug/L	SW846 8021B
Xylenes (total)	ND	1.0	ug/L	SW846 8021B

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: C2K210168 IMS Environmental Services PAGE 2
IMS Env James River Ghost Fle Date Reported: 12/18/02
Project Number: IMS ENV

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
-----------	--------	--------------------	-------	----------------------

Client Sample ID: SITE WATER

Sample #: 001 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: WATER

Semivolatile Organic Compounds by GC/MS Reviewed
Kepone ND 38 ug/L SW846 8270C

8270C (SIM) Reviewed

Naphthalene	ND	0.19	ug/L	SW846 8270C SIM
Acenaphthylene	ND	0.19	ug/L	SW846 8270C SIM
Acenaphthene	ND	0.19	ug/L	SW846 8270C SIM
Fluorene	ND	0.19	ug/L	SW846 8270C SIM
Phenanthrene	ND	0.19	ug/L	SW846 8270C SIM
Anthracene	ND	0.19	ug/L	SW846 8270C SIM
Fluoranthene	ND	0.19	ug/L	SW846 8270C SIM
Pyrene	ND	0.19	ug/L	SW846 8270C SIM
Benzo(a)anthracene	ND	0.19	ug/L	SW846 8270C SIM
Chrysene	ND	0.19	ug/L	SW846 8270C SIM
Benzo(b)fluoranthene	ND	0.19	ug/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	0.19	ug/L	SW846 8270C SIM
Benzo(a)pyrene	ND	0.19	ug/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	0.19	ug/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	ND	0.19	ug/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	0.19	ug/L	SW846 8270C SIM

Extractable Petroleum Hydrocarbons Reviewed
TPH (as Diesel) ND 100 ug/L SW846 8015B

Volatile Petroleum Hydrocarbons Reviewed
TPH (as Gasoline) ND 100 ug/L SW846 8015B

Sediment Samples – Totals Analytical Results

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: C2K210162 **IMS Environmental Services** PAGE 1
IMS Env James River Ghost Fle Date Reported: 12/18/02
Project Number: IMS ENV

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
-----------	--------	--------------------	-------	----------------------

Client Sample ID: SS-1

Sample #: 001 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: SOLID

Trace Inductively Coupled Plasma (ICP) Metals

Reviewed

Silver	ND	0.48	mg/kg	SW846 6010B
Aluminum	4420	19.2	mg/kg	SW846 6010B
Arsenic	3.5	0.96	mg/kg	SW846 6010B
Barium	29.3	19.2	mg/kg	SW846 6010B
Beryllium	0.71	0.38	mg/kg	SW846 6010B
Calcium	836	480	mg/kg	SW846 6010B
Cadmium	0.35 B	0.48	mg/kg	SW846 6010B
Cobalt	3.6 B	4.8	mg/kg	SW846 6010B
Chromium	14.1	0.48	mg/kg	SW846 6010B
Copper	37.3 N*	2.4	mg/kg	SW846 6010B
Iron	14800	9.6	mg/kg	SW846 6010B
Potassium	709	480	mg/kg	SW846 6010B
Magnesium	1220	480	mg/kg	SW846 6010B
Manganese	112	1.4	mg/kg	SW846 6010B
Sodium	1740	480	mg/kg	SW846 6010B
Nickel	9.4	3.8	mg/kg	SW846 6010B
Lead	57.2 N*	0.29	mg/kg	SW846 6010B
Antimony	0.77 BN	0.96	mg/kg	SW846 6010B
Selenium	ND	0.48	mg/kg	SW846 6010B
Thallium	0.74 B	0.96	mg/kg	SW846 6010B
Vanadium	49.3 N	4.8	mg/kg	SW846 6010B
Zinc	115 N*	1.9	mg/kg	SW846 6010B

Mercury in Solid Waste (Manual Cold-Vapor)

Reviewed

Mercury	0.14	0.032	mg/kg	SW846 7471A
---------	------	-------	-------	-------------

B Estimated result. Result is less than RL.

N Spiked analyte recovery is outside stated control limits.

Volatiles by GC

Reviewed

Benzene	ND	1.7	ug/kg	SW846 8021B
Ethylbenzene	ND	1.7	ug/kg	SW846 8021B
Toluene	ND	1.7	ug/kg	SW846 8021B
Xylenes (total)	ND	1.7	ug/kg	SW846 8021B

Results and reporting limits have been adjusted for dry weight.

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: C2K210162 IMS Environmental Services PAGE 2
IMS Env James River Ghost Fle Date Reported: 12/18/02
Project Number: IMS ENV

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
-----------	--------	--------------------	-------	----------------------

Client Sample ID: SS-1

Sample #: 001 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: SOLID

Semivolatile Organic Compounds by GC/MS Reviewed
Kepone ND 1300 ug/kg SW846 8270C

Results and reporting limits have been adjusted for dry weight.

8270C (SIM) Reviewed

Naphthalene	1.1 J	6.4	ug/kg	SW846 8270C SIM
Acenaphthylene	8.8	6.4	ug/kg	SW846 8270C SIM
Acenaphthene	4.5 J	6.4	ug/kg	SW846 8270C SIM
Fluorene	6.4	6.4	ug/kg	SW846 8270C SIM
Phenanthrene	18	6.4	ug/kg	SW846 8270C SIM
Anthracene	14	6.4	ug/kg	SW846 8270C SIM
Fluoranthene	100	6.4	ug/kg	SW846 8270C SIM
Pyrene	52	6.4	ug/kg	SW846 8270C SIM
Benzo(a)anthracene	30	6.4	ug/kg	SW846 8270C SIM
Chrysene	42	6.4	ug/kg	SW846 8270C SIM
Benzo(b)fluoranthene	63	6.4	ug/kg	SW846 8270C SIM
Benzo(k)fluoranthene	ND	6.4	ug/kg	SW846 8270C SIM
Benzo(a)pyrene	35	6.4	ug/kg	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	30	6.4	ug/kg	SW846 8270C SIM
Dibenzo(a,h)anthracene	13	6.4	ug/kg	SW846 8270C SIM
Benzo(ghi)perylene	35	6.4	ug/kg	SW846 8270C SIM

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Extractable Petroleum Hydrocarbons Reviewed
TPH (as Diesel) 89 87 mg/kg SW846 8015B

Results and reporting limits have been adjusted for dry weight.

Volatile Petroleum Hydrocarbons Reviewed
TPH (as Gasoline) 2100 170 ug/kg SW846 8015B

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: C2K210162 **IMS Environmental Services** PAGE 3
IMS Env James River Ghost Fle Date Reported: 12/18/02
Project Number: IMS ENV

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
-----------	--------	-----------------	-------	-------------------

Client Sample ID: SS-1

Sample #: 001 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: SOLID

Volatile Petroleum Hydrocarbons Reviewed

Results and reporting limits have been adjusted for dry weight.

Inorganic Analysis				Reviewed
Total Residue as	57.2	1.0	%	MCAWW 160.3 MOD
Percent Solids				

Client Sample ID: SS-2

Sample #: 002 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: SOLID

Trace Inductively Coupled Plasma (ICP) Metals Reviewed

Silver	0.10 B	0.57	mg/kg	SW846 6010B
Aluminum	14100	22.6	mg/kg	SW846 6010B
Arsenic	7.5	1.1	mg/kg	SW846 6010B
Barium	66.4	22.6	mg/kg	SW846 6010B
Beryllium	1.5	0.45	mg/kg	SW846 6010B
Calcium	1330	565	mg/kg	SW846 6010B
Cadmium	0.53 B	0.57	mg/kg	SW846 6010B
Cobalt	10.0	5.7	mg/kg	SW846 6010B
Chromium	27.9	0.57	mg/kg	SW846 6010B
Copper	32.5 N*	2.8	mg/kg	SW846 6010B
Iron	33700	11.3	mg/kg	SW846 6010B
Potassium	1990	565	mg/kg	SW846 6010B
Magnesium	3320	565	mg/kg	SW846 6010B
Manganese	484	1.7	mg/kg	SW846 6010B
Sodium	2440	565	mg/kg	SW846 6010B
Nickel	16.3	4.5	mg/kg	SW846 6010B
Lead	40.6 N*	0.34	mg/kg	SW846 6010B
Antimony	ND N	1.1	mg/kg	SW846 6010B
Selenium	ND	0.57	mg/kg	SW846 6010B
Thallium	2.7	1.1	mg/kg	SW846 6010B
Vanadium	60.9 N	5.7	mg/kg	SW846 6010B
Zinc	195 N*	2.3	mg/kg	SW846 6010B

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: C2K210162 **IMS Environmental Services** PAGE 4
IMS Env James River Ghost Fle Date Reported: 12/18/02
Project Number: IMS ENV

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
-----------	--------	--------------------	-------	----------------------

Client Sample ID: SS-2

Sample #: 002 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: SOLID

Mercury in Solid Waste (Manual Cold-Vapor)					Reviewed
Mercury	0.28	0.038	mg/kg	SW846 7471A	

B Estimated result. Result is less than RL.

N Spiked analyte recovery is outside stated control limits.

Volatiles by GC					Reviewed
Benzene	ND	2.3	ug/kg	SW846 8021B	
Ethylbenzene	ND	2.3	ug/kg	SW846 8021B	
Toluene	ND	2.3	ug/kg	SW846 8021B	
Xylenes (total)	ND	2.3	ug/kg	SW846 8021B	

Results and reporting limits have been adjusted for dry weight.

Semivolatile Organic Compounds by GC/MS					Reviewed
Kepone	ND	1500	ug/kg	SW846 8270C	

Results and reporting limits have been adjusted for dry weight.

8270C (SIM)					Reviewed
Naphthalene	1.2 J	7.5	ug/kg	SW846 8270C SIM	
Acenaphthylene	6.6 J	7.5	ug/kg	SW846 8270C SIM	
Acenaphthene	1.6 J	7.5	ug/kg	SW846 8270C SIM	
Fluorene	4.0 J	7.5	ug/kg	SW846 8270C SIM	
Phenanthrene	8.8	7.5	ug/kg	SW846 8270C SIM	
Anthracene	8.3	7.5	ug/kg	SW846 8270C SIM	
Fluoranthene	35	7.5	ug/kg	SW846 8270C SIM	
Pyrene	19	7.5	ug/kg	SW846 8270C SIM	
Benzo(a)anthracene	14	7.5	ug/kg	SW846 8270C SIM	
Chrysene	21	7.5	ug/kg	SW846 8270C SIM	
Benzo(b)fluoranthene	24	7.5	ug/kg	SW846 8270C SIM	
Benzo(k)fluoranthene	ND	7.5	ug/kg	SW846 8270C SIM	
Benzo(a)pyrene	15	7.5	ug/kg	SW846 8270C SIM	
Indeno(1,2,3-cd)pyrene	12	7.5	ug/kg	SW846 8270C SIM	

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: C2K210162 **IMS Environmental Services** PAGE 5
IMS Env James River Ghost Fle Date Reported: 12/18/02
Project Number: IMS ENV

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
-----------	--------	-----------------	-------	-------------------

Client Sample ID: SS-2

Sample #: 002 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: SOLID

8270C (SIM)				Reviewed
Dibenzo(a,h)anthracene	4.5 J	7.5	ug/kg	SW846 8270C SIM
Benzo(ghi)perylene	14	7.5	ug/kg	SW846 8270C SIM

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Extractable Petroleum Hydrocarbons				Reviewed
TPH (as Diesel)	30	23	mg/kg	SW846 8015B

Results and reporting limits have been adjusted for dry weight.

Volatile Petroleum Hydrocarbons				Reviewed
TPH (as Gasoline)	ND	230	ug/kg	SW846 8015B

Results and reporting limits have been adjusted for dry weight.

Inorganic Analysis				Reviewed
Total Residue as Percent Solids	44.2	1.0	%	MCAWW 160.3 MOD

Client Sample ID: SS-3

Sample #: 003 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: SOLID

Trace Inductively Coupled Plasma (ICP) Metals				Reviewed
Silver	ND	0.49	mg/kg	SW846 6010B
Aluminum	1850	19.5	mg/kg	SW846 6010B
Arsenic	1.4	0.98	mg/kg	SW846 6010B
Barium	9.7 B	19.5	mg/kg	SW846 6010B
Beryllium	0.30 B	0.39	mg/kg	SW846 6010B
Calcium	298 B	488	mg/kg	SW846 6010B
Cadmium	0.067 B	0.49	mg/kg	SW846 6010B

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: C2K210162 **IMS Environmental Services** PAGE 6
IMS Env James River Ghost Fle Date Reported: 12/18/02
Project Number: IMS ENV

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
-----------	--------	--------------------	-------	----------------------

Client Sample ID: SS-3

Sample #: 003 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: SOLID

Cobalt	1.7 B	4.9	mg/kg	SW846 6010B
Chromium	5.0	0.49	mg/kg	SW846 6010B
Copper	4.1 N*	2.4	mg/kg	SW846 6010B
Iron	5120	9.8	mg/kg	SW846 6010B
Potassium	380 B	488	mg/kg	SW846 6010B
Magnesium	584	488	mg/kg	SW846 6010B
Manganese	72.9	1.5	mg/kg	SW846 6010B
Sodium	1040	488	mg/kg	SW846 6010B
Nickel	2.5 B	3.9	mg/kg	SW846 6010B
Lead	6.0 N*	0.29	mg/kg	SW846 6010B
Antimony	ND N	0.98	mg/kg	SW846 6010B
Selenium	ND	0.49	mg/kg	SW846 6010B
Thallium	ND	0.98	mg/kg	SW846 6010B
Vanadium	10.3 N	4.9	mg/kg	SW846 6010B
Zinc	27.5 N*	2	mg/kg	SW846 6010B

Mercury in Solid Waste (Manual Cold-Vapor)

Reviewed

Mercury	0.041	0.032	mg/kg	SW846 7471A
---------	-------	-------	-------	-------------

B Estimated result. Result is less than RL.

N Spiked analyte recovery is outside stated control limits.

Volatiles by GC

Reviewed

Benzene	ND	1.3	ug/kg	SW846 8021B
Ethylbenzene	ND	1.3	ug/kg	SW846 8021B
Toluene	ND	1.3	ug/kg	SW846 8021B
Xylenes (total)	ND	1.3	ug/kg	SW846 8021B

Results and reporting limits have been adjusted for dry weight.

Semivolatile Organic Compounds by GC/MS

Reviewed

Kepone	ND	1300	ug/kg	SW846 8270C
--------	----	------	-------	-------------

Results and reporting limits have been adjusted for dry weight.

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: C2K210162 IMS Environmental Services PAGE 7
IMS Env James River Ghost Fle Date Reported: 12/18/02
Project Number: IMS ENV

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
-----------	--------	--------------------	-------	----------------------

Client Sample ID: SS-3

Sample #: 003 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: SOLID

				Reviewed
8270C (SIM)				
Naphthalene	ND	6.5	ug/kg	SW846 8270C SIM
Acenaphthylene	0.94 J	6.5	ug/kg	SW846 8270C SIM
Acenaphthene	ND	6.5	ug/kg	SW846 8270C SIM
Fluorene	ND	6.5	ug/kg	SW846 8270C SIM
Phenanthrene	1.2 J	6.5	ug/kg	SW846 8270C SIM
Anthracene	0.89 J	6.5	ug/kg	SW846 8270C SIM
Fluoranthene	5.8 J	6.5	ug/kg	SW846 8270C SIM
Pyrene	3.2 J	6.5	ug/kg	SW846 8270C SIM
Benzo(a)anthracene	2.3 J	6.5	ug/kg	SW846 8270C SIM
Chrysene	2.2 J	6.5	ug/kg	SW846 8270C SIM
Benzo(b)fluoranthene	3.4 J	6.5	ug/kg	SW846 8270C SIM
Benzo(k)fluoranthene	ND	6.5	ug/kg	SW846 8270C SIM
Benzo(a)pyrene	2.5 J	6.5	ug/kg	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	1.9 J	6.5	ug/kg	SW846 8270C SIM
Dibenzo(a,h)anthracene	ND	6.5	ug/kg	SW846 8270C SIM
Benzo(ghi)perylene	2.3 J	6.5	ug/kg	SW846 8270C SIM

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

				Reviewed
Extractable Petroleum Hydrocarbons				
TPH (as Diesel)	8.4 J	13	mg/kg	SW846 8015B

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

				Reviewed
Volatile Petroleum Hydrocarbons				
TPH (as Gasoline)	ND	130	ug/kg	SW846 8015B

Results and reporting limits have been adjusted for dry weight.

				Reviewed
Inorganic Analysis				
Total Residue as Percent Solids	77.0	1.0	%	MCAWW 160.3 MOD

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: C2K210162 IMS Environmental Services PAGE 8
IMS Env James River Ghost Fle Date Reported: 12/18/02
Project Number: IMS ENV

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
-----------	--------	-----------------	-------	-------------------

Client Sample ID: SS-4

Sample #: 004 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: SOLID

Trace Inductively Coupled Plasma (ICP) Metals

Reviewed

Silver	ND	0.54	mg/kg	SW846 6010B
Aluminum	18200	21.7	mg/kg	SW846 6010B
Arsenic	8.9	1.1	mg/kg	SW846 6010B
Barium	86.8	21.7	mg/kg	SW846 6010B
Beryllium	1.7	0.43	mg/kg	SW846 6010B
Calcium	1420	542	mg/kg	SW846 6010B
Cadmium	0.55	0.54	mg/kg	SW846 6010B
Cobalt	10.9	5.4	mg/kg	SW846 6010B
Chromium	31.1	0.54	mg/kg	SW846 6010B
Copper	30.3 N*	2.7	mg/kg	SW846 6010B
Iron	36200	10.8	mg/kg	SW846 6010B
Potassium	2260	542	mg/kg	SW846 6010B
Magnesium	3580	542	mg/kg	SW846 6010B
Manganese	785	1.6	mg/kg	SW846 6010B
Sodium	2700	542	mg/kg	SW846 6010B
Nickel	17.5	4.3	mg/kg	SW846 6010B
Lead	40.2 N*	0.33	mg/kg	SW846 6010B
Antimony	ND N	1.1	mg/kg	SW846 6010B
Selenium	ND	0.54	mg/kg	SW846 6010B
Thallium	2.3	1.1	mg/kg	SW846 6010B
Vanadium	66.0 N	5.4	mg/kg	SW846 6010B
Zinc	175 N*	2.2	mg/kg	SW846 6010B

Mercury in Solid Waste (Manual Cold-Vapor)

Reviewed

Mercury	0.35	0.036	mg/kg	SW846 7471A
---------	------	-------	-------	-------------

N Spiked analyte recovery is outside stated control limits.

Volatiles by GC

Reviewed

Benzene	ND	2.2	ug/kg	SW846 8021B
Ethylbenzene	ND	2.2	ug/kg	SW846 8021B
Toluene	ND	2.2	ug/kg	SW846 8021B
Xylenes (total)	ND	2.2	ug/kg	SW846 8021B

Results and reporting limits have been adjusted for dry weight.

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: C2K210162 IMS Environmental Services PAGE 9
IMS Env James River Ghost Fle Date Reported: 12/18/02
Project Number: IMS ENV

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
-----------	--------	-----------------	-------	-------------------

Client Sample ID: SS-4

Sample #: 004 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: SOLID

Semivolatile Organic Compounds by GC/MS Reviewed
Kepone ND 1400 ug/kg SW846 8270C

Results and reporting limits have been adjusted for dry weight.

8270C (SIM) Reviewed

Naphthalene	ND	7.2	ug/kg	SW846 8270C SIM
Acenaphthylene	3.3 J	7.2	ug/kg	SW846 8270C SIM
Acenaphthene	0.89 J	7.2	ug/kg	SW846 8270C SIM
Fluorene	2.4 J	7.2	ug/kg	SW846 8270C SIM
Phenanthrene	5.6 J	7.2	ug/kg	SW846 8270C SIM
Anthracene	2.6 J	7.2	ug/kg	SW846 8270C SIM
Fluoranthene	12	7.2	ug/kg	SW846 8270C SIM
Pyrene	12	7.2	ug/kg	SW846 8270C SIM
Benzo(a)anthracene	6.5 J	7.2	ug/kg	SW846 8270C SIM
Chrysene	7.7	7.2	ug/kg	SW846 8270C SIM
Benzo(b)fluoranthene	5.2 J	7.2	ug/kg	SW846 8270C SIM
Benzo(k)fluoranthene	7.1 J	7.2	ug/kg	SW846 8270C SIM
Benzo(a)pyrene	8.7	7.2	ug/kg	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	5.3 J	7.2	ug/kg	SW846 8270C SIM
Dibenzo(a,h)anthracene	2.4 J	7.2	ug/kg	SW846 8270C SIM
Benzo(ghi)perylene	7.0 J	7.2	ug/kg	SW846 8270C SIM

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Extractable Petroleum Hydrocarbons Reviewed
TPH (as Diesel) 6.0 J 22 mg/kg SW846 8015B

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Volatile Petroleum Hydrocarbons Reviewed
TPH (as Gasoline) ND 220 ug/kg SW846 8015B

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: C2K210162 **IMS Environmental Services** PAGE 10
IMS Env James River Ghost Fle **Date Reported:** 12/18/02
Project Number: IMS ENV
REPORTING ANALYTICAL
PARAMETER RESULT LIMIT UNITS METHOD

Client Sample ID: SS-4

Sample #: 004 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: SOLID

Volatile Petroleum Hydrocarbons Reviewed

Results and reporting limits have been adjusted for dry weight.

Inorganic Analysis Reviewed
Total Residue as 46.1 1.0 % MCAWW 160.3 MOD
Percent Solids

Elutriate Analytical Results

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: C2K210182 IMS Environmental Services PAGE 1
IMS Env James River Ghost Fle Date Reported: 12/19/02
Project Number: IMS ENV

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
-----------	--------	-----------------	-------	-------------------

Client Sample ID: ELUTRIATE-1

Sample #: 001 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: SOLID

Trace Inductively Coupled Plasma (ICP) Metals

Reviewed

Silver	Dissolved	ND	5.0	ug/L	SW846 6010B
Aluminum	Dissolved	947 E	200	ug/L	SW846 6010B
Arsenic	Dissolved	4.9 B	10.0	ug/L	SW846 6010B
Barium	Dissolved	198 B	200	ug/L	SW846 6010B
Beryllium	Dissolved	2.4 B	4.0	ug/L	SW846 6010B
Calcium	Dissolved	79700	5000	ug/L	SW846 6010B
Cadmium	Dissolved	0.32 B	5.0	ug/L	SW846 6010B
Cobalt	Dissolved	2.7 B	50.0	ug/L	SW846 6010B
Chromium	Dissolved	ND	5.0	ug/L	SW846 6010B
Copper	Dissolved	4.6 B	25.0	ug/L	SW846 6010B
Iron	Dissolved	1350	100	ug/L	SW846 6010B
Potassium	Dissolved	119000 E	5000	ug/L	SW846 6010B
Magnesium	Dissolved	214000	5000	ug/L	SW846 6010B
Manganese	Dissolved	603	15.0	ug/L	SW846 6010B
Sodium	Dissolved	1820000	25000	ug/L	SW846 6010B
Nickel	Dissolved	5.4 B	40.0	ug/L	SW846 6010B
Lead	Dissolved	2.3 B	3.0	ug/L	SW846 6010B
Antimony	Dissolved	ND	10.0	ug/L	SW846 6010B
Selenium	Dissolved	3.2 B	5.0	ug/L	SW846 6010B
Thallium	Dissolved	10.6	10.0	ug/L	SW846 6010B
Vanadium	Dissolved	12.2 B	50.0	ug/L	SW846 6010B
Zinc	Dissolved	22.3	20.0	ug/L	SW846 6010B

Mercury in Liquid Waste (Manual Cold-Vapor)

Reviewed

Mercury	Dissolved	ND	0.20	ug/L	SW846 7470A
---------	-----------	----	------	------	-------------

E Matrix interference.

B Estimated result. Result is less than RL.

Semivolatile Organic Compounds by GC/MS - Dissolved

Reviewed

Kepone	ND	80	ug/L	SW846 8270C
--------	----	----	------	-------------

8270C (SIM) - Dissolved

Reviewed

Acenaphthene	0.088 J	0.40	ug/L	SW846 8270C SIM
Acenaphthylene	ND	0.40	ug/L	SW846 8270C SIM

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: C2K210182 IMS Environmental Services PAGE 2
IMS Env James River Ghost Fle Date Reported: 12/19/02
Project Number: IMS ENV

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
-----------	--------	--------------------	-------	----------------------

Client Sample ID: ELUTRIATE-1

Sample #: 001 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: SOLID

8270C (SIM) - Dissolved				Reviewed
Anthracene	ND	0.40	ug/L	SW846 8270C SIM
Benzo(a)anthracene	ND	0.40	ug/L	SW846 8270C SIM
Benzo(b)fluoranthene	ND	0.40	ug/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	0.40	ug/L	SW846 8270C SIM
Benzo(a)pyrene	ND	0.40	ug/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	0.40	ug/L	SW846 8270C SIM
Chrysene	ND	0.40	ug/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	ND	0.40	ug/L	SW846 8270C SIM
Fluoranthene	0.081 J	0.40	ug/L	SW846 8270C SIM
Fluorene	ND	0.40	ug/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	0.40	ug/L	SW846 8270C SIM
Naphthalene	ND	0.40	ug/L	SW846 8270C SIM
Phenanthrene	0.088 J	0.40	ug/L	SW846 8270C SIM
Pyrene	0.096 J	0.40	ug/L	SW846 8270C SIM

J Estimated result. Result is less than RL.

Inorganic Analysis	Reviewed			
Total Residue as	52.0	1.0	%	MCAWW 160.3 MOD
Percent Solids				

Client Sample ID: ELUTRIATE-2

Sample #: 002 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: SOLID

Trace Inductively Coupled Plasma (ICP) Metals				Reviewed
Silver	Dissolved	ND	5.0	ug/L SW846 6010B
Aluminum	Dissolved	1240	200	ug/L SW846 6010B
Arsenic	Dissolved	7.4 B	10.0	ug/L SW846 6010B
Barium	Dissolved	208	200	ug/L SW846 6010B
Beryllium	Dissolved	2.5 B	4.0	ug/L SW846 6010B
Calcium	Dissolved	71100	5000	ug/L SW846 6010B
Cadmium	Dissolved	0.53 B	5.0	ug/L SW846 6010B
Cobalt	Dissolved	2.7 B	50.0	ug/L SW846 6010B

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: C2K210182 IMS Environmental Services PAGE 3
IMS Env James River Ghost Fle Date Reported: 12/19/02
Project Number: IMS ENV

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
-----------	--------	-----------------	-------	-------------------

Client Sample ID: ELUTRIATE-2

Sample #: 002 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: SOLID

Chromium	Dissolved	2.4 B	5.0	ug/L	SW846 6010B
Copper	Dissolved	4.5 B	25.0	ug/L	SW846 6010B
Iron	Dissolved	1560	100	ug/L	SW846 6010B
Potassium	Dissolved	123000	5000	ug/L	SW846 6010B
Magnesium	Dissolved	213000	5000	ug/L	SW846 6010B
Manganese	Dissolved	1000	15.0	ug/L	SW846 6010B
Sodium	Dissolved	1790000	25000	ug/L	SW846 6010B
Nickel	Dissolved	4.0 B	40.0	ug/L	SW846 6010B
Lead	Dissolved	3.4	3.0	ug/L	SW846 6010B
Antimony	Dissolved	ND	10.0	ug/L	SW846 6010B
Selenium	Dissolved	ND	5.0	ug/L	SW846 6010B
Thallium	Dissolved	12.8	10.0	ug/L	SW846 6010B
Vanadium	Dissolved	14.4 B	50.0	ug/L	SW846 6010B
Zinc	Dissolved	25.5	20.0	ug/L	SW846 6010B

Mercury in Liquid Waste (Manual Cold-Vapor) Reviewed
Mercury Dissolved ND 0.20 ug/L SW846 7470A

B Estimated result. Result is less than RL.

Semivolatile Organic Compounds by GC/MS - Dissolved Reviewed
Kepone ND 80 ug/L SW846 8270C

8270C (SIM) - Dissolved Reviewed

Acenaphthene	ND	0.40	ug/L	SW846 8270C	SIM
Acenaphthylene	ND	0.40	ug/L	SW846 8270C	SIM
Anthracene	ND	0.40	ug/L	SW846 8270C	SIM
Benzo(a)anthracene	ND	0.40	ug/L	SW846 8270C	SIM
Benzo(b)fluoranthene	ND	0.40	ug/L	SW846 8270C	SIM
Benzo(k)fluoranthene	ND	0.40	ug/L	SW846 8270C	SIM
Benzo(a)pyrene	ND	0.40	ug/L	SW846 8270C	SIM
Benzo(ghi)perylene	ND	0.40	ug/L	SW846 8270C	SIM
Chrysene	ND	0.40	ug/L	SW846 8270C	SIM
Dibenzo(a,h)anthracene	ND	0.40	ug/L	SW846 8270C	SIM
Fluoranthene	ND	0.40	ug/L	SW846 8270C	SIM
Fluorene	ND	0.40	ug/L	SW846 8270C	SIM

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: C2K210182 **IMS Environmental Services** PAGE 4
IMS Env James River Ghost Fle **Date Reported:** 12/19/02
Project Number: IMS ENV

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
-----------	--------	--------------------	-------	----------------------

Client Sample ID: ELUTRIATE-2

Sample #: 002 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: SOLID

8270C (SIM) - Dissolved				Reviewed
Indeno(1,2,3-cd)pyrene	ND	0.40	ug/L	SW846 8270C SIM
Naphthalene	ND	0.40	ug/L	SW846 8270C SIM
Phenanthrene	ND	0.40	ug/L	SW846 8270C SIM
Pyrene	0.050 J	0.40	ug/L	SW846 8270C SIM

J Estimated result. Result is less than RL.

Inorganic Analysis				Reviewed
Total Residue as	53.0	1.0	%	MCAWW 160.3 MOD
Percent Solids				

Client Sample ID: ELUTRIATE-1

Sample #: 003 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: WATER

Extractable Petroleum Hydrocarbons				Reviewed
TPH (as Diesel)	850	100	ug/L	SW846 8015B

Client Sample ID: ELUTRIATE-2

Sample #: 004 Date Sampled: 11/19/02 Date Received: 11/21/02 Matrix: WATER

Extractable Petroleum Hydrocarbons				Reviewed
TPH (as Diesel)	290	100	ug/L	SW846 8015B

Appendix C

Consultation Letters and Responses

September 25, 2002

J. Christopher Ludwig
Department of Conservation and Recreation
Division of Natural Heritage
217 Governor St., 3rd Floor
Richmond, VA 23219

Dear Mr. Ludwig:

The U.S. Army Transportation Center, Fort Eustis, and the U.S. Army Corps of Engineers, Norfolk District, are preparing an Environmental Assessment to evaluate potential environmental effects associated with the proposed dredging of two unconnected but neighboring federal navigation channels accessing facilities on the eastern shoreline of the James River, Virginia, and to vertically expand the Fort Eustis Dredged Material Management Area (FEDMMA) on Fort Eustis, Virginia.

The Army and the U.S. Maritime Administration (MARAD) propose to dredge the Skiffes Creek Channel to a depth of -16 feet MLLW (mean lower low water) for a length of 8,300 feet from deep water in the James River into Skiffes Creek, including two turning basins, variable in width and 1,600 and 1,440 feet in length, to a depth of -15 MLLW. The estimated yardage of dredged material to be disposed is 450,000 cubic yards. The MARAD Facility Access Channel would be dredged to a depth of -12 feet MLLW for a length of 2,800 feet, running perpendicular to the James River Channel and terminating upstream at an included turning basin 1,000 feet in length and variable in width, no wider than approximately 420 feet. The estimated yardage of dredged material to be disposed is 170,000 cubic yards. The FEDMMA would be vertically expanded by raising the dike walls to a minimum height of 35 feet, using the dried dredged material inside the FEDMMA from previous dredging as the source material for the dike raising. The outside footprint of the FEDMMA would remain unchanged.

In accordance with the National Environmental Policy Act, Endangered Species Act, and Fish and Wildlife Coordination Act, an evaluation of the potential impacts (both positive and negative) associated with implementing this action is required. We are requesting your further input concerning this action with regard to any biological concerns, such as essential fish habitat, threatened and endangered species, or other species under your cognizance. For quick reference, the project area can be found on the attached location map of Fort Eustis.

To assist us in our evaluation of the project, please submit any comments or concerns you may have about the project by 25 October 2002. Please address all comments to: Mr. Richard Muller, U.S. Army Corps of Engineers, Norfolk District, Attn: CENAO-PL-R, 803 Front Street, Norfolk, VA 23510-1096 (Email: richard.j.muller@usace.army.mil). Your comments/concerns will be addressed in the Environmental Assessment that will be available for public comment mid-November 2002.

Your prompt consideration and response is greatly appreciated. If you need additional information please call me at (757) 441-7767. Thank you for your cooperation.

Sincerely,

Richard J. Muller
ATTCH: A/S

September 25, 2002

Mr. Timothy E. Goodger, Officer in Charge
National Marine Fisheries Service
Habitat Conservation District
904 South Morris Street
Oxford, MD 21654

Dear Mr. Goodger:

The U.S. Army Transportation Center, Fort Eustis, and the U.S. Army Corps of Engineers, Norfolk District, are preparing an Environmental Assessment to evaluate potential environmental effects associated with the proposed dredging of two unconnected but neighboring federal navigation channels accessing facilities on the eastern shoreline of the James River, Virginia, and to vertically expand the Fort Eustis Dredged Material Management Area (FEDMMA) on Fort Eustis, Virginia.

The Army and the U.S. Maritime Administration (MARAD) propose to dredge the Skiffes Creek Channel to a depth of -16 feet MLLW (mean lower low water) for a length of 8,300 feet from deep water in the James River into Skiffes Creek, including two turning basins, variable in width and 1,600 and 1,440 feet in length, to a depth of -15 MLLW. The estimated yardage of dredged material to be disposed is 450,000 cubic yards. The MARAD Facility Access Channel would be dredged to a depth of -12 feet MLLW for a length of 2,800 feet, running perpendicular to the James River Channel and terminating upstream at an included turning basin 1,000 feet in length and variable in width, no wider than approximately 420 feet. The estimated yardage of dredged material to be disposed is 170,000 cubic yards. The FEDMMA would be vertically expanded by raising the dike walls to a minimum height of 35 feet, using the dried dredged material inside the FEDMMA from previous dredging as the source material for the dike raising. The outside footprint of the FEDMMA would remain unchanged.

In accordance with the National Environmental Policy Act, Endangered Species Act, and Fish and Wildlife Coordination Act, an evaluation of the potential impacts (both positive and negative) associated with implementing this action is required. We are requesting your further input concerning this action with regard to any biological concerns, such as essential fish habitat, threatened and endangered species, or other species under your cognizance. For quick reference, the project area can be found on the attached location map of Fort Eustis.

To assist us in our evaluation of the project, please submit any comments or concerns you may have about the project by 25 October 2002. Please address all comments to: Mr. Richard Muller, U.S. Army Corps of Engineers, Norfolk District, Attn: CENAO-PL-R, 803 Front Street, Norfolk, VA 23510-1096 (Email: richard.j.muller@usace.army.mil). Your comments/concerns will be addressed in the Environmental Assessment that will be available for public comment mid-November 2002.

Your prompt consideration and response is greatly appreciated. If you need additional information please call me at (757) 441-7767. Thank you for your cooperation.
Sincerely,

Richard J. Muller

ATTCH: A/S

September 25, 2002

Ms. Karen Mayne
U.S. Fish and Wildlife Service
Division of Ecological Services
P.O. Box 99
Gloucester, VA 23061

Dear Ms. Mayne:

The U.S. Army Transportation Center, Fort Eustis, and the U.S. Army Corps of Engineers, Norfolk District, are preparing an Environmental Assessment to evaluate potential environmental effects associated with the proposed dredging of two unconnected but neighboring federal navigation channels accessing facilities on the eastern shoreline of the James River, Virginia, and to vertically expand the Fort Eustis Dredged Material Management Area (FEDMMA) on Fort Eustis, Virginia.

The Army and the U.S. Maritime Administration (MARAD) propose to dredge the Skiffes Creek Channel to a depth of -16 feet MLLW (mean lower low water) for a length of 8,300 feet from deep water in the James River into Skiffes Creek, including two turning basins, variable in width and 1,600 and 1,440 feet in length, to a depth of -15 MLLW. The estimated yardage of dredged material to be disposed is 450,000 cubic yards. The MARAD Facility Access Channel would be dredged to a depth of -12 feet MLLW for a length of 2,800 feet, running perpendicular to the James River Channel and terminating upstream at an included turning basin 1,000 feet in length and variable in width, no wider than approximately 420 feet. The estimated yardage of dredged material to be disposed is 170,000 cubic yards. The FEDMMA would be vertically expanded by raising the dike walls to a minimum height of 35 feet, using the dried dredged material inside the FEDMMA from previous dredging as the source material for the dike raising. The outside footprint of the FEDMMA would remain unchanged.

In accordance with the National Environmental Policy Act, Endangered Species Act, and Fish and Wildlife Coordination Act, an evaluation of the potential impacts (both positive and negative) associated with implementing this action is required. We are requesting your further input concerning this action with regard to any biological concerns, such as essential fish habitat, threatened and endangered species, or other species under your cognizance. For quick reference, the project area can be found on the attached location map of Fort Eustis.

To assist us in our evaluation of the project, please submit any comments or concerns you may have about the project by 25 October 2002. Please address all comments to: Mr. Richard Muller, U.S. Army Corps of Engineers, Norfolk District, Attn: CENAO-PL-R, 803 Front Street, Norfolk, VA 23510-1096 (Email: richard.j.muller@usace.army.mil). Your comments/concerns will be addressed in the Environmental Assessment that will be available for public comment mid-November 2002.

Your prompt consideration and response is greatly appreciated. If you need additional information please call me at (757) 441-7767. Thank you for your cooperation.
Sincerely,

Richard J. Muller
ATTCH: A/S

September 25, 2002

Mr. Raymond T. Fernald
Virginia Department of Game and Inland Fisheries
4010 West Broad Street
Richmond, VA 23230

Dear Mr. Fernald:

The U.S. Army Transportation Center, Fort Eustis, and the U.S. Army Corps of Engineers, Norfolk District, are preparing an Environmental Assessment to evaluate potential environmental effects associated with the proposed dredging of two unconnected but neighboring federal navigation channels accessing facilities on the eastern shoreline of the James River, Virginia, and to vertically expand the Fort Eustis Dredged Material Management Area (FEDMMA) on Fort Eustis, Virginia.

The Army and the U.S. Maritime Administration (MARAD) propose to dredge the Skiffes Creek Channel to a depth of -16 feet MLLW (mean lower low water) for a length of 8,300 feet from deep water in the James River into Skiffes Creek, including two turning basins, variable in width and 1,600 and 1,440 feet in length, to a depth of -15 MLLW. The estimated yardage of dredged material to be disposed is 450,000 cubic yards. The MARAD Facility Access Channel would be dredged to a depth of -12 feet MLLW for a length of 2,800 feet, running perpendicular to the James River Channel and terminating upstream at an included turning basin 1,000 feet in length and variable in width, no wider than approximately 420 feet. The estimated yardage of dredged material to be disposed is 170,000 cubic yards. The FEDMMA would be vertically expanded by raising the dike walls to a minimum height of 35 feet, using the dried dredged material inside the FEDMMA from previous dredging as the source material for the dike raising. The outside footprint of the FEDMMA would remain unchanged.

In accordance with the National Environmental Policy Act, Endangered Species Act, and Fish and Wildlife Coordination Act, an evaluation of the potential impacts (both positive and negative) associated with implementing this action is required. We are requesting your further input concerning this action with regard to any biological concerns, such as essential fish habitat, threatened and endangered species, or other species under your cognizance. For quick reference, the project area can be found on the attached location map of Fort Eustis.

To assist us in our evaluation of the project, please submit any comments or concerns you may have about the project by 25 October 2002. Please address all comments to: Mr. Richard Muller, U.S. Army Corps of Engineers, Norfolk District, Attn: CENAO-PL-R, 803 Front Street, Norfolk, VA 23510-1096 (Email: richard.j.muller@usace.army.mil). Your comments/concerns will be addressed in the Environmental Assessment that will be available for public comment mid-November 2002.

Your prompt consideration and response is greatly appreciated. If you need additional information please call me at (757) 441-7767. Thank you for your cooperation.

Sincerely,

Richard J. Muller

ATTCH: A/S

September 25, 2002

Mr. Robert Grabb, Chief
Virginia Marine Resources Commission
Habitat Management Division
2600 Washington Avenue
Newport News, VA 23607

Dear Mr. Grabb:

The U.S. Army Transportation Center, Fort Eustis, and the U.S. Army Corps of Engineers, Norfolk District, are preparing an Environmental Assessment to evaluate potential environmental effects associated with the proposed dredging of two unconnected but neighboring federal navigation channels accessing facilities on the eastern shoreline of the James River, Virginia, and to vertically expand the Fort Eustis Dredged Material Management Area (FEDMMA) on Fort Eustis, Virginia.

The Army and the U.S. Maritime Administration (MARAD) propose to dredge the Skiffes Creek Channel to a depth of -16 feet MLLW (mean lower low water) for a length of 8,300 feet from deep water in the James River into Skiffes Creek, including two turning basins, variable in width and 1,600 and 1,440 feet in length, to a depth of -15 MLLW. The estimated yardage of dredged material to be disposed is 450,000 cubic yards. The MARAD Facility Access Channel would be dredged to a depth of -12 feet MLLW for a length of 2,800 feet, running perpendicular to the James River Channel and terminating upstream at an included turning basin 1,000 feet in length and variable in width, no wider than approximately 420 feet. The estimated yardage of dredged material to be disposed is 170,000 cubic yards. The FEDMMA would be vertically expanded by raising the dike walls to a minimum height of 35 feet, using the dried dredged material inside the FEDMMA from previous dredging as the source material for the dike raising. The outside footprint of the FEDMMA would remain unchanged.

In accordance with the National Environmental Policy Act, Endangered Species Act, and Fish and Wildlife Coordination Act, an evaluation of the potential impacts (both positive and negative) associated with implementing this action is required. We are requesting your further input concerning this action with regard to any biological concerns, such as essential fish habitat, threatened and endangered species, or other species under your cognizance. For quick reference, the project area can be found on the attached location map of Fort Eustis.

To assist us in our evaluation of the project, please submit any comments or concerns you may have about the project by 25 October 2002. Please address all comments to: Mr. Richard Muller, U.S. Army Corps of Engineers, Norfolk District, Attn: CENAO-PL-R, 803 Front Street, Norfolk, VA 23510-1096 (Email: richard.j.muller@usace.army.mil). Your comments/concerns will be addressed in the Environmental Assessment that will be available for public comment mid-November 2002.

Your prompt consideration and response is greatly appreciated. If you need additional information please call me at (757) 441-7767. Thank you for your cooperation.

Sincerely,

Richard J. Muller
ATTCH: A/S

November 21, 2002

John Olney
Virginia Institute of Marine Science
P.O. Box 1346
Gloucester Point, Virginia 23062-1346

Dear Mr. Olney:

The U.S. Army Transportation Center, Fort Eustis, and the U.S. Army Corps of Engineers, Norfolk District, are preparing an Environmental Assessment to evaluate potential environmental effects associated with the proposed dredging of two unconnected but neighboring federal navigation channels accessing facilities on the eastern shoreline of the James River, Virginia, and to vertically expand the Fort Eustis Dredged Material Management Area (FEDMMA) on Fort Eustis, Virginia. While coordinating with the Virginia Department of Game and Inland Fisheries, Tom Wilcox recommended we consult you concerning potential project impacts to fish spawning, specifically striped bass (*Morone saxatilis*).

The Army and the U.S. Maritime Administration (MARAD) propose to dredge the Skiffes Creek Channel to a depth of -16 feet MLLW (mean lower low water) for a length of 8,300 feet from deep water in the James River into Skiffes Creek, including two turning basins, variable in width and 1,600 and 1,440 feet in length, to a depth of -15 MLLW. The estimated yardage of dredged material to be disposed is 450,000 cubic yards. The MARAD Facility Access Channel would be dredged to a depth of -12 feet MLLW for a length of 2,800 feet, running perpendicular to the James River Channel and terminating upstream at an included turning basin 1,000 feet in length and variable in width, no wider than approximately 420 feet. The estimated yardage of dredged material to be disposed is 170,000 cubic yards. The FEDMMA would be vertically expanded by raising the dike walls to a minimum height of 35 feet, using the dried dredged material inside the FEDMMA from previous dredging as the source material for the dike raising. The outside footprint of the FEDMMA would remain unchanged.

In accordance with the National Environmental Policy Act, Endangered Species Act, and Fish and Wildlife Coordination Act, an evaluation of the potential impacts (both positive and negative) associated with implementing this action is required. We are requesting your further input concerning this action with regard to any biological concerns, such as essential fish habitat, threatened and endangered species, or other species under your cognizance. For quick reference, the project area can be found on the attached location map of Fort Eustis.

To assist us in our evaluation of the project, please submit any comments or concerns you may have about the project by 24 December 2002. Please address all comments to: Mr. Richard Muller, U.S. Army Corps of Engineers, Norfolk District, Attn: CENAO-PL-R, 803 Front Street, Norfolk, VA 23510-1096 (Email: richard.j.muller@usace.army.mil). Your comments/concerns will be addressed in the Environmental Assessment that will be available for public comment winter 2002.

Your prompt consideration and response is greatly appreciated. If you need additional information please call me at (757) 441-7767. Thank you for your cooperation.
Sincerely,

Richard J. Muller
ATTCH: A/S

30 January 2002

Programs and Project Management Division
Environmental Branch

Kathleen Kilpatrick
State Historic Preservation Officer
Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

Dear Ms. Kilpatrick:

The U.S. Army Transportation Center, Fort Eustis, and the U.S. Army Corps of Engineers, Norfolk District are preparing an Environmental Assessment which will evaluate the potential environmental effects associated with the proposed maintenance dredging of Skiffes Creek and the U.S. Maritime Administration (MARAD) Facility Access Channel.

The Army and MARAD propose to remove approximately 680,000 cubic yards of material from the existing channels. The dredging will be to approved connecting depths in the James River. The dredged material will be placed in the Fort Eustis Dredged Material Management Area (FEDMMA) an upland dredged material placement area on Fort Eustis. It will be necessary for the Army to expand the volumetric capacity of the FEDMMA to accommodate additional dredged material by raising the containment dikes from their present elevation of approximately +20 feet mean sea level (m.s.l.) to approximately +30 feet m.s.l. The outward toe and face of the dikes will remain unchanged, with the crest of the dikes moved inward with the increased elevation. A map that shows the project area is attached to this letter.

To assist us in our evaluation of the project, please submit any comments or concerns you may have about the project by 12 February 2003. Please address all comments to: Mr. Richard Muller, U.S. Army Corps of Engineers, Norfolk District, Attn: CENAO-PM-E, 803 Front Street, Norfolk, Virginia 23510-1096 (Email: richard.j.muller@usace.army.mil). Your comments/concerns will be addressed in the Environmental Assessment that will be available for public comment.

If you need additional information please call me at (757) 441-7767. Thank you for your cooperation.

Sincerely,

Richard J. Muller
Project Manager

ATTCH: A/S

W. Tayloe Murphy, Jr.
Secretary of Natural
Resources



Joseph H. Maroon
Director

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

217 Governor Street
Richmond, Virginia 23219-2010
Telephone (804) 786-7951 FAX (804) 371-2674 TDD (804) 786-2121

October 25, 2002

Richard J. Muller
U.S. Army Corps of Engineers
Norfolk District, Attn: CENAO-PL-R
803 Front Street
Norfolk, VA 23510-1096

Re: Dredging of Skiffes Creek Channel and MARAD Facility Access Channel

Dear Mr. Muller:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biological and Conservation Data System (BCD) for occurrences of **natural heritage** resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

BCD documents the presence of natural heritage resources in the project area. However, due to the scope of the activity and the distance to the resource, we do not anticipate that this project will adversely impact these natural heritage resources.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

An absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources. New and updated information is continually added to BCD. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

Thank you for the opportunity to comment on this project.

Sincerely,

A handwritten signature in cursive script, appearing to read "Elizabeth Locklear".

Elizabeth Locklear
Locality Liaison



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
6669 Short Lane
Gloucester, VA 23061



October 28, 2002

Mr. Richard Muller
U.S. Army Corps of Engineers
803 Front Street
Norfolk, Virginia 23510-1096

Re: Fort Eustis Dredging Project,
2572, City of Newport News, VA

Dear Mr. Muller:

The U.S. Fish and Wildlife Service has reviewed your September 26, 2002 request for information on federally listed species for the referenced project. This letter is submitted in accordance with provisions of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

The U.S. Army proposes to dredge the Skiffes Creek Channel and the U.S. Maritime Administration Facility Access Channel. The approximately 620,000 cubic yards of dredged material would be disposed of in the Fort Eustis Dredged Material Management Area. Based on the project description and location, it appears that this project is not likely to adversely affect any federally listed or proposed species or their designated critical habitat.

If you have any questions or need further assistance concerning this project, contact Ms. Jolie Harrison at (804) 693-6694, extension 208.

Sincerely,

Karen L. Mayne
Supervisor
Virginia Field Office



COMMONWEALTH of VIRGINIA

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

Department of Game and Inland Fisheries

William L. Woodfin, Jr.
Director

October 4, 2002

Richard J. Muller
Project Manager
USACOE, Norfolk District
Fort Norfolk, 803 Front Street
Norfolk, Virginia 23510-1096

RE: ESSLOG #18118, Fort Eustis Dredging Projects

Dear Mr. Muller:

This letter is in response to your request for information related to the presence of threatened or endangered species in the vicinity of the above referenced project.

1. **Skiffes Creek Channel Dredging.** The *state and federal threatened* bald eagle (*Haliaeetus leucocephalus*) has been documented in the project area. The applicant should coordinate with this Department and with the U.S. Fish and Wildlife Service to evaluate potential impacts on this species.

In addition, the project is located in a stream reach that contains documented occurrences of striped bass (*Morone saxatilis*) and the *federal species of concern/state special concern* Atlantic sturgeon (*Acipenser oxyrinchus*). The applicant should coordinate with this Department regarding potential impacts to these species.

Block surveys adjacent to the project site also documented the following *state special concern* species during the breeding season: great egret (*Ardea alba*), northern harrier (*Circus cyaneus*), and least tern (*Sterna antillarum*). These species may occur at the project site if appropriate habitat exists, but no coordination is required.

2. **FEDMMA.** The project is located within 0.5 mile of a stream reach that contains documented occurrences of striped bass and the *federal species of concern/state special concern* Atlantic sturgeon. The applicant should coordinate with this Department regarding potential impacts to these species.

In addition, block surveys adjacent to the project site documented the *state and federal threatened* bald eagle, as well as the following *state special concern* species during the breeding season: great egret, northern harrier, and least tern. These species may occur at the project site if appropriate habitat exists, but no coordination is required at this time.

Richard Muller
ESSLog #18118
10/4/2002
Page 2

3. **MARAD Facility Access Channel Dredging.** . The *state and federal threatened* bald eagle and the *state threatened* peregrine falcon (*Falco peregrinus*) have been documented in the project area. The applicant should coordinate with this Department and with the U.S. Fish and Wildlife Service to evaluate potential impacts on this species.

In addition, the project is located in a stream reach that contains documented occurrences of striped bass and the *federal species of concern/state special concern* Atlantic sturgeon. The applicant should coordinate with this Department regarding potential impacts to these species.

Finally, block surveys adjacent to the project site documented the following *state special concern* species during the breeding season: great egret, northern harrier, and least tern. These species may occur at the project site if appropriate habitat exists, but no coordination is required at this time.

Information about fish and wildlife species was generated from our agency's computerized Fish and Wildlife Information System, which describes animals that are known or may occur in a particular geographic area. Field surveys may be necessary to determine the presence or absence of some of these species on or near the proposed area. Also, additional sensitive animal species may be present, but their presence has not been documented in our information system.

Endangered plants and insects are under the jurisdiction of the Virginia Department of Agriculture and Consumer Services, Bureau of Plant Protection. Questions concerning sensitive plant and insect species occurring at the project site should be directed to Keith Tignor at (804) 786-3515.

There is no processing charge for our response.

This letter summarizes the likelihood of the occurrence of endangered or threatened animal species at the project site. If you have additional questions in this regard, please contact me at (804) 367-8001. Please note that this response does not address any other environmental concerns; these issues are analyzed by our Environmental Services Section, in conjunction with interagency review of applications for state and federal permits. If you have any questions in this regard, please contact Tom Wilcox or Brian Moyer at (804) 367-6913.

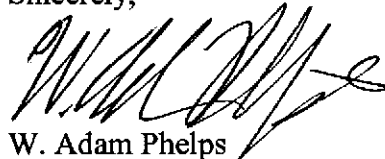
Please note that the data used to develop this response are continually updated. Therefore, if significant changes are made to your project or if the project has not begun within 6 months of receiving this letter, then the applicant should request a new review of our data.

Richard Muller
ESSLog #18118
10/4/2002
Page 3

The Fish and Wildlife Information Service, the system of databases used to provide the information in this letter, can now be accessed via the Internet! The Service currently provides access to current and comprehensive information about all of Virginia's fish and wildlife resources, including those listed as threatened, endangered, or special concern; colonial birds; waterfowl; trout streams; and all wildlife. Users can choose a geographic location and generate a report of species known or likely to occur around that point. From our main web page, at www.dgif.state.va.us, choose the hyperlink to "Wildlife", then "Wildlife Information & Mapping Services" and then "Wildlife Information Online Service". For more information, please contact Amy Martin, Online Service Coordinator, at (804) 367-2211.

Thank you for your interest in the wildlife resources of Virginia.

Sincerely,



W. Adam Phelps
Wildlife Biologist

cc: R.T. Fernald, VDGIF
Eric Davis, USFWS



COMMONWEALTH of VIRGINIA

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

Marine Resources Commission

*2600 Washington Avenue
Third Floor
Newport News, Virginia 23607*

William A. Pruitt
Commissioner

October 29, 2002

Department of the Army
Programs and Project Management Division
Environmental Branch
Attn: Richard J. Muller
Norfolk District, Corps of Engineers
Fort Norfolk, 803 Front Street
Norfolk, VA 23510-1096

Re: Environmental Assessment
U. S. Army Transportation Center

Dear Mr. Muller:

This will acknowledge receipt of your request for comments or concerns related to potential environmental effects associated with the proposed dredging of two unconnected but neighboring federal navigation channels accessing facilities on the eastern shoreline of the James River and to vertically expand the Fort Eustis Dredged Material Management Area (FEDMMA) on and adjacent to Fort Eustis, Virginia.

First, VMRC would recommend the submittal of a Joint Permit Application for the proposed work. Potential areas of concern could be potential impacts to anadromous fish migration, oyster ground impacts, both public and private, as well as potential impacts to any endangered species that may be located within or adjacent to the proposed dredge areas.

Thank you for the opportunity to comment on this project. If you have any questions, please feel free to call me at 757-247-2009.

Sincerely,

A handwritten signature in black ink, appearing to read "Ben Stagg".

Ben Stagg
Environmental Engineer

BS/lmn
HM

Appendix D

Coastal Zone Consistency Determination

January 17, 2003

Ms. Ellie Irons
Virginia Department of Environmental Quality
Division of Environmental Enhancement
Office of Environmental Impact Review
629 East Main Street, 6th Floor
Richmond, VA 23240

Dear Ms. Irons:

Concerning the Coastal Zone Consistency (CZC) process for the proposed dredging of Skiffes Creek Channel and the U.S. Maritime Administration (MARAD) Facility Access Channel at Fort Eustis, Virginia, this letter represents our determination that the proposed action (dredging of the two aforementioned channels at Fort Eustis, Virginia) is consistent with the long-term goals and policies of the Virginia Coastal Resources Management Program (VCRMP).

The U.S. Army has proposed the dredging of the Skiffes Creek Channel and MARAD Facility Access Channel at Fort Eustis, Virginia. The proposed action would entail dredging the Skiffes Creek Channel to an average depth of -16 feet mean lower low water (MLLW) for a length of 8,300 feet and dredging the MARAD Facility Access Channel to a depth of -14 feet MLLW for a length of 2,800 feet. An estimated 680,000 cubic yards of material would be dredged. The dredged material would be hydraulically pumped through a 16-inch pipeline to the Fort Eustis Dredged Material Management Area (FEDMMA). Prior to the dredging of either Skiffes Creek Channel or the MARAD Facility Access Channel, the FEDMMA would be vertically expanded by raising the dike walls between 10 to 15 feet to achieve a minimum height of 30 feet above mean sea level. The outside footprint of the FEDMMA, which is surrounded by wetlands, would remain unchanged. Tetra Tech, Inc. is preparing an Environmental Assessment of the proposed action for the U.S. Army corps of Engineers, Norfolk District.

Following is a listing, by program, of how the proposed Army project would affect the enforceable regulatory programs comprising the VCRMP, the advisory policies for the geographic areas of particular concern, and the advisory policies for shorefront access planning and protection.

Enforceable Regulatory Programs

a. Fisheries Management

The Virginia Fisheries Management program stresses the need to take the measures “necessary to promote the general welfare of the seafood industry and to conserve and promote the seafood and marine resources of the Commonwealth.” (VA Code § 28.2-201.1). The Virginia Marine Resources Commission has the authority to promulgate regulations, license, prepare fishery management plans, and enforce regulations as necessary to achieve the purposes of the program. The state of Virginia established the Department of Game and Inland Fisheries to ensure “the preservation and propagation of game birds, game animals, fish and other wildlife in order to increase, replenish and restock the lands and inland waters of the Commonwealth.” (VA Code § 29.1-103.3)

Fisheries management issues are addressed in the Environmental Assessment (EA) for the Maintenance Dredging of the Skiffes Creek Channel and the MARAD Facility Access Channel,

and the Vertical Expansion of the FEDMMA. The document describes the affected aquatic environment, considers fish species observed at Fort Eustis during recent surveys, and discusses the issues potential contamination in sediments that would be dredged as part of the project. Nine federally managed fish species have Essential Fish Habitat in the project area. An Essential Fish Habitat Assessment has been compiled and submitted to the National Marine Fisheries Service.

As described in the EA, during the course of the project all necessary precautions will be taken to protect the aquatic habitats and aquatic organisms that could possibly be affected by the proposed activity. The measures proposed to be conducted include sampling and testing Kepone levels in the sediments before dredging, which have been undisturbed since 1968 in the MARAD Facility Access Channel; observing dredging restrictions in the James River from March 15th to June 30th to protect anadromous fish habitat; reparation of any wetlands disturbed by the hydraulic dredge line; and adherence strictly to legal procedures for the handling and disposal of all hazardous materials that are encountered.

b. Subaqueous Lands Management

The Subaqueous Lands Management Program makes it unlawful for any person, which includes the military, to build upon or over the beds of rivers, streams, or creeks that are the property of the Commonwealth of Virginia, unless the activity is done pursuant to a permit issued by the Virginia Marine Resources Commission (VA Code § 28.2-1203). Additionally, the program requires that “[a]ny person constructing or erecting any structure upon or over state-owned subaqueous bottoms, or their grantees or assignees for value, shall be responsible for the maintenance or removal of the structure upon its abandonment or its falling into a state of disrepair.” (VA Code § 28.2-1209)

The proposed project does not involve building any structure upon or over the beds of rivers, streams, or creeks that are the property of the Commonwealth of Virginia.

c. Wetlands Management

Virginia’s Tidal Wetlands Program recognizes the primary ecological significance of wetlands and encourages that development in tidewater Virginia be concentrated in wetlands of lesser ecological significance (VA Code § 28.2-1308). Under the program, it is “unlawful for any person to conduct any activity which would require a permit under a wetlands zoning ordinance without such a permit.” (VA Code § 28.2-1306) Additionally, it is unlawful to excavate in a wetland in Virginia unless the excavation is done in compliance with an individual or general Virginia Water Protection Permit (VA Code § 62.1-44.15.5).

Wetlands are known to be in the general vicinity of the project area. The EA takes disturbance to wetlands into account by describing nearby wetland vegetation, analyzing the indirect and cumulative impacts that the proposed project may have on wetlands in the adjacent waters, and recommending mitigation measures to protect potentially affected wetlands, including reparation of any wetlands disturbed by the hydraulic dredge line.

d. Dunes Management

Any of the following counties, cities, and towns which have a wetlands zoning ordinance may adopt as well a coastal primary sand dune zoning ordinance: The counties of Accomack, Lancaster, Mathews, Northampton, and Northumberland; the cities of Hampton, Norfolk, and Virginia Beach; and the Town of Cape Charles (VA Code § 28.2-1403). Fort Eustis lies within

the city of Newport News and has a small parcel of land on the north shore of Skiffes Creek within York County.

Dune protection pursuant to the Coastal Primary Sand Dune Protection Act does not apply to the installation, as no primary sand dunes exist within the proposed project area or would be affected by the proposed project.

e. Non-point Source Pollution Control

Virginia's erosion and sediment control program was created "for the effective control of soil erosion, sediment deposition and nonagricultural runoff . . . to prevent the unreasonable degradation of properties, stream channels, waters and other natural resources." (VA Code § 10.1-561)

The proposed project will occur entirely within the channels to be dredged and the FEDMMA. No soil-disturbing activities are planned to occur during the proposed project, and thus the provisions of the erosion and sediment control program do not apply to the proposed project.

f. Point Source Pollution Control

A Virginia Water Protection Permit is required for point sources of pollution, per the provisions of the National Pollutant Discharge Elimination System permit program established under section 402 of the Clean Water Act.

No point sources of pollution exist within the vicinity of the proposed project area and the proposed project will not involve the use or creation of any point sources of pollution.

g. Shoreline Sanitation

The Virginia Shoreline Sanitation Program regulates the installation of septic tanks.

The proposed project does not include the installation, removal, or maintenance of septic tanks.

h. Air Pollution Control

The Virginia Air Pollution Control Program implements the federal Clean Air Act.

Fort Eustis lies within a maintenance area for ozone for National Ambient Air Quality Standards and has estimated that the air emissions due to the proposed project will not violate provisions of Virginia's State Implementation Plan. A Record of Non-applicability will be prepared in conjunction with the EA.

i. Coastal Lands Management

This project involves the removal of sediment from the James River and Skiffes Creek. The project does not involve any development.

Advisory Policies for Geographic Areas of Particular Concern

a. Coastal Natural Resource Areas

Skiffes Creek and the James River has been used for shipping for many years. None of the resources listed as worthy of special consideration will be disturbed by this project.

b. Coastal Natural Hazard Areas

The project will not affect any Highly Erodible Areas or Coastal High Hazard Areas.

c. Waterfront Development Areas

The area where dredging and dredge material disposal will occur is not designated as a Waterfront Development Area. However, the area provides access to ports, and keeping those ports operational is in accordance with the intent of this advisory policy.

h. Underwater Historic Sites [I wasn't sure where this one belonged; pasted (after alteration) from the other document.]

There are no underwater historic sites within the project area. The area has been dredged before and has been an active shipping channel for many years.

Advisory Policies for Shorefront Access Planning and Protection

No public beaches, commercial waterfront, recreation areas, wildlife management areas, or parks are located in the project area. Historic properties and cultural resources near the dredging sites and FEDMMA are addressed in the EA.

a. Virginia Public Beaches

There are no public beaches in the project area.

b. Virginia Outdoors Plan

No public access point exists near the project site. The installation is guarded 24 hours per day.

c. Parks, Natural Areas, and Wildlife Management Areas

There are no parks, natural areas or wildlife management areas near the project site.

d. Waterfront Recreational Land Acquisition

No land disposal will occur in conjunction with the proposed project.

e. Waterfront Recreational Facilities

No recreational facilities are involved in the proposed project.

f. Waterfront Historic Properties

There are no standing structures or archaeological sites within the project area nor are there any historic structures within the viewsheds that would be affected by the proposed action.

Based on our review of Virginia's rules of coastal zone management, we have determined that the proposed action is consistent with the long-term goals and policies of the VCRMP. We request your concurrence with this determination as soon as possible.

Should you have any questions, please contact me at (757) 441-7767 or richard.j.muller@usace.army.mil. Thank you for your assistance in this matter.

Sincerely,

Richard J. Muller

Appendix E

Bird Species at Fort Eustis

Table E
Bird Species Recorded on Fort Eustis, 1990—1991

Scientific Name	Common Name
<i>Gavia immer</i>	common loon
<i>Podiceps grisegena</i>	red-necked grebe
<i>Podiceps auritus</i>	horned grebe
<i>Podilymbus podiceps</i> *	pied-billed grebe
<i>Phalacrocorax auritus</i> *	double-crested cormorant
<i>Ardea herodias</i>	great blue heron
<i>Ardea alba</i> *	great egret
<i>Egretta thula</i> *	snowy egret
<i>Butorides striatus</i>	green heron
<i>Bubulcus ibis</i>	cattle egret
<i>Nycticorax violaceus</i> *	yellow-crowned night-heron
<i>Botaurus lentiginosus</i> *	American bittern
<i>Ixobrychus exilis</i> *	least bittern
<i>Cygnus olor</i>	mute swan
<i>Cygnus columbianus</i>	tundra swan
<i>Branta canadensis</i>	Canada goose
<i>Aix sponsa</i>	wood duck
<i>Anas crecca</i>	green-winged teal
<i>Anas rubripes</i>	American black duck
<i>Anas platyrhynchos</i>	mallard
<i>Anas strepera</i> *	gadwall
<i>Anas acuta</i>	northern pintail
<i>Anas discolor</i> *	blue-winged teal
<i>Anas clypeata</i>	northern shoveler
<i>Anas americana</i>	American wigeon
<i>Aythya affinis</i>	lesser scaup
<i>Aythya marila</i>	greater scaup
<i>Aythya collaris</i>	ring-necked duck
<i>Aythya americana</i>	redhead
<i>Aythya valisineria</i>	canvasback
<i>Bucephala albeola</i>	bufflehead
<i>Bucephala clangula</i>	common goldeneye
<i>Clangula hyemalis</i>	oldsquaw
<i>Lophodytes cucullatus</i>	hooded merganser
<i>Mergus serrator</i>	red-breasted merganser
<i>Oxyura jamaicensis</i>	ruddy duck

Table E
Bird Species Recorded on Fort Eustis, 1990—1991 (continued)

Scientific Name	Common Name
<i>Accipiter striatus</i>	sharp-skinned hawk
<i>Accipiter cooperii</i> *	Cooper's hawk
<i>Haliaeetus leucocephalus</i> *	bald eagle
<i>Pandion haliaetus</i>	osprey
<i>Buteo lineatus</i>	red-shouldered hawk
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>Falco sparverius</i>	American kestrel
<i>Falco columbarius</i>	merlin
<i>Colinus virginianus</i>	northern bobwhite
<i>Gallinula chloropus</i> *	common moorhen
<i>Rallus elegans</i> *	king rail
<i>Rallus longirostris</i>	clapper rail
<i>Rallus limicola</i> *	Virginia rail
<i>Porzana carolina</i> *	sora
<i>Charadrius vociferus</i>	killdeer
<i>Charadrius semipalmatus</i>	semipalmated plover
<i>Tringa melanoleuca</i>	greater yellowlegs
<i>Tringa flavipes</i>	lesser yellowlegs
<i>Tringa solitaria</i>	solitary sandpiper
<i>Actitis macularia</i> *	spotted sandpiper
<i>Arenaria interpres</i>	ruddy turnstone
<i>Calidris alba</i>	sanderling
<i>Calidris alpina</i>	dunlin
<i>Calidris fuscicollis</i>	white-rumped sandpiper
<i>Calidris minutilla</i>	least sandpiper
<i>Calidris pusilla</i>	semipalmated sandpiper
<i>Calidris mauri</i>	western sandpiper
<i>Calidris melanotos</i>	pectoral sandpiper
<i>Calidris himantopus</i>	stilt sandpiper
<i>Limnodromus griseus</i>	short-billed dowitcher
<i>Limnodromus scolopaceus</i>	long-billed dowitcher
<i>Gallinago gallinago</i>	common snipe
<i>Scolopax minor</i>	American woodcock
<i>Phalaropus tricolor</i>	Wilson's phalarope
<i>Larus philadelphia</i>	Bonaparte's gull
<i>Larus atricilla</i>	laughing gull

Table E
Bird Species Recorded on Fort Eustis, 1990—1991 (continued)

Scientific Name	Common Name
<i>Larus delawarensis</i>	ring-billed gull
<i>Larus argentatus</i>	herring gull
<i>Larus fuscus</i>	lesser black-backed gull
<i>Larus marinus</i>	great black-backed gull
<i>Sterna caspia</i> *	Caspian tern
<i>Sterna forsteri</i>	Forster's tern
<i>Sterna maxima</i> *	royal tern
<i>Sterna hirundo</i>	common tern
<i>Chlidonias niger</i>	black tern
<i>Coccyzus americanus</i>	yellow-billed cuckoo
<i>Bubo virginianus</i>	great horned owl
<i>Strix varia</i>	barred owl
<i>Chaetura pelagica</i>	chimney swift
<i>Archilochus colubris</i>	ruby-throated hummingbird
<i>Ceryle alcyon</i>	belted kingfisher
<i>Sphyrapicus varius</i> *	yellow-bellied sapsucker
<i>Colaptes auratus</i>	northern flicker
<i>Melanerpes erythrocephalus</i>	red-headed woodpecker
<i>Picoides villosus</i>	hairy woodpecker
<i>Dryocopus pileatus</i>	pileated woodpecker
<i>Myiarchus crinitus</i>	great crested flycatcher
<i>Sayornis phoebe</i>	eastern phoebe
<i>Tyrannus tyrannus</i>	eastern kingbird
<i>Progne subis</i>	purple martin
<i>Stelgidopteryx serripennis</i>	northern rough-winged swallow
<i>Riparia riparia</i>	bank swallow
<i>Hirundo rustica</i>	barn swallow
<i>Tachycineta bicolor</i>	tree swallow
<i>Sitta pygmaea</i>	brown-headed nuthatch
<i>Sitta canadensis</i> *	red-breasted nuthatch
<i>Certhia americana</i> *	brown creeper
<i>Troglodytes troglodytes</i> *	winter wren
<i>Troglodytes aedon</i>	house wren
<i>Cistothorus platensis</i> *	sedge wren
<i>Cistothorus palustris</i>	marsh wren
<i>Regulus calendula</i>	ruby-crowned kinglet

Table E
Bird Species Recorded on Fort Eustis, 1990—1991 (continued)

Scientific Name	Common Name
<i>Poliophtila caerulea</i>	blue-gray gnatcatcher
<i>Sialia sialis</i>	eastern bluebird
<i>Catharus guttatus*</i>	hermit thrush
<i>Dumetella carolinensis</i>	gray catbird
<i>Toxostoma rufum</i>	brown thrasher
<i>Bombycilla cedrorum</i>	cedar waxwing
<i>Vireo solitarius</i>	solitary vireo
<i>Vireo olivaceus</i>	red-eyed vireo
<i>Vireo griseus</i>	white-eyed vireo
<i>Protonotaria citrea</i>	prothonotary warbler
<i>Vermivora celata</i>	orange-crowned warbler
<i>Parula americana</i>	northern parula
<i>Dendroica petechia</i>	yellow warbler
<i>Dendroica dominica</i>	yellow-throated warbler
<i>Dendroica magnolia*</i>	magnolia warbler
<i>Dendroica coronata</i>	yellow-rumped warbler
<i>Dendroica caerulescens</i>	black-throated blue warbler
<i>Dendroica striata</i>	blackpoll warbler
<i>Dendroica palmarum</i>	palm warbler
<i>Dendroica discolor</i>	prairie warbler
<i>Dendroica pinus</i>	pine warbler
<i>Mniotilta varia</i>	black-and-white warbler
<i>Setophaga ruticilla</i>	American redstart
<i>Seiurus noveboracensis</i>	northern waterthrush
<i>Seiurus aurocapillus</i>	ovenbird
<i>Geothlypis trichas</i>	common yellowthroat
<i>Icteria virens</i>	yellow-breasted chat
<i>Piranga olivacea</i>	scarlet tanager
<i>Pheucticus ludovicianus</i>	rose-breasted grosbeak
<i>Guiraca caerulea</i>	blue grosbeak
<i>Passerina cyanea</i>	indigo bunting
<i>Pipilo erythrophthalmus</i>	eastern towhee
<i>Spizella passerina</i>	chipping sparrow
<i>Pooecetes gramineus</i>	vesper sparrow
<i>Ammodramus leconteii</i>	LeConte's sparrow
<i>Passerculus sandwichensis</i>	savannah sparrow

Table E
Bird Species Recorded on Fort Eustis, 1990—1991 (continued)

Scientific Name	Common Name
<i>Melospiza georgiana</i> *	swamp sparrow
<i>Passerella iliaca</i>	fox sparrow
<i>Junco hyemalis</i>	dark-eyed junco
<i>Euphagus carolinus</i>	rusty blackbird
<i>Icterus galbula</i>	Baltimore oriole
<i>Icterus spurius</i>	orchard oriole
<i>Carpodacus purpureus</i> *	purple finch
<i>Carduelis pinus</i>	pine siskin

*Listed on the Virginia rare animal list.

Appendix F

Fish Species at Fort Eustis

Table F
Fish Species at Fort Eustis

Name	Location	
	James River	Eustis Lake
American eel (<i>Anguilla rostrata</i>)	!	
Atlantic thread herring (<i>Opisthonema oglinum</i>)	!	
Atlantic croaker (<i>Micropogonias undulatus</i>)	!	
Atlantic silverside (<i>Menidia menidia</i>)	!	
Bay anchovy (<i>Anchoa mitchilli</i>)	!	
Black crappie (<i>Pomoxis nigromaculatus</i>)		!
Blackcheek tonguefish (<i>Symphurus plagiusa</i>)	!	
Bluefish (<i>Pomatomus saltatrix</i>)	!	
Bluegill (<i>Lepomis macrochives</i>)		!
Bowfin (<i>Amia calva</i>)		!
Brown bullhead (<i>Ameiurus nebulosus</i>)		!
Channel catfish (<i>Ictalurus punctatus</i>)		!
Common carp (<i>Cyprinus carpio</i>)	!	!
Golden shiner (<i>Notemigonus crysoleucas</i>)		!
Gizzard shad (<i>Dorosoma cepedianum</i>)	!	!
Hogchoker (<i>Trinectes maculatus</i>)	!	
Inshore lizardfish (<i>Synodus foetens</i>)	!	
Largemouth bass (<i>Micropterus salmoides</i>)		!
Mosquitofish (<i>Gambusia affinis</i>)		!
Northern kingfish (<i>Menticirrhus saxatilis</i>)	!	
Pumpkinseed (<i>Lepomis gibbosus</i>)		!
Red ear sunfish (<i>Lepomis microlophus</i>)		!
Rough silverside (<i>Membras martinica</i>)	!	
Spot (<i>Leiostomus xanthurus</i>)	!	
Striped anchovy (<i>Anchoa hepsetus</i>)	!	
Striped killifish (<i>Fundulus majalis</i>)	!	

Table F
Fish Species at Fort Eustis (continued)

Name	Location	
	James River	Eustis Lake
Striped bass (<i>Morone saxatilis</i>)	!	!
Weakfish (<i>Cynoscion regalis</i>)	!	
White catfish (<i>Ictalurus catus</i>)		!
White crappie (<i>Pomoxis annularis</i>)		!
White mullet (<i>Mugil curema</i>)	!	
White perch (<i>Morone americana</i>)	!	!
Yellow Bullhead (<i>Ameiurus natalis</i>)		!

Source: IS&T, 1990b, and USATCFE, 1981d, cited in SAIC, 1996.

Appendix G

Essential Fish Habitat (EFH) Assessment

**Essential Fish Habitat Assessment for
Dredging of Skiffes Creek and the MARAD Facility Channel,
Newport News, Virginia
December 23, 2002**

Description of the Proposed Action

The U.S. Army Transportation Center, Fort Eustis, and the U.S. Army Corps of Engineers, Norfolk District, are preparing an Environmental Assessment to evaluate potential environmental effects associated with the proposed dredging of two unconnected but neighboring navigation channels accessing facilities on the eastern shoreline of the James River, Virginia, and to vertically expand the Fort Eustis Dredged Material Management Area (FEDMMA) on Fort Eustis, Virginia.

The Army and the U.S. Maritime Administration (MARAD) propose to dredge the Skiffes Creek Channel to an average depth of -16 feet MLLW (-11 feet MLLW to -17 feet MLLW) for a length of 8,300 feet from deep water in the James River into Skiffes Creek. This would include two turning basins, variable in width and 1,600 and 1,440 feet in length, with a depth of -15 MLLW. The estimated amount of dredged material is 500,000 cubic yards. The MARAD Facility Access Channel would be dredged to a depth of -14 feet MLLW for a length of 2,800 feet, running perpendicular to the James River Channel and terminating upstream at an included turning basin 1,000 feet in length with a variable width, no greater than approximately 420 feet. The estimated amount of dredged material is 180,000 cubic yards. The dredged material from both channels would be hydraulically pumped through a 16" pipeline varying in length depending on the distance to the FEDMMA, which is situated on land. The pipeline would run (supported by floatation devices) over water to the shoreline, then cross one road and adjacent wetlands, and into the FEDMMA.

The FEDMMA would be vertically expanded by raising the dike walls to a minimum height of 30 feet by using the dried dredged material inside the FEDMMA from previous dredging as the source material for the dike raising. The outside footprint of the FEDMMA would remain unchanged. Dredged material placed in the FEDMMA, would be allowed to settle and excess water decanted over an outlet box that drains into Milstead Island Creek.

Pursuant to requirements of the National Environmental Policy Act, the EA addresses dredging proposed to be implemented as part of this action. Because the project is located in Essential Fish Habitat (EFH) for nine federally managed fish species in the James River Estuary, consultation with the National Marine Fisheries Service is mandated under the Magnuson-Stevens Fishery Conservation and Management Act.

Essential Fish Habitat Designations

Nine fish species have essential fish habitat designations in the James River estuary. The species and their life stages are listed in Table 1 below.

Table 1. Essential Fish Habitat Designations for the James River Estuary					
Species	Eggs	Larvae	Juveniles	Adults	Spawning Adults
Windowpane flounder (<i>Scopthalmus aquosus</i>)			M	M	
Bluefish (<i>Pomatomus saltatrix</i>)			M	M	
Atlantic butterfish (<i>Peprilus triacanthus</i>)			M	M	
Summer flounder (<i>Paralichthys dentatus</i>)		M	M	M	
Black sea bass (<i>Centropomus striata</i>)			M	M	
King mackerel (<i>Scomberomorus cavalla</i>)	X	X	X	X	
Spanish mackerel (<i>Scomberomorus maculatus</i>)	X	X	X	X	
Cobia (<i>Rachycentron canadum</i>)	X	X	X	X	
Red drum (<i>Sciaenops ocellatus</i>)	X	X	X	X	

M = The EFH designation for this species includes the mixing water/ brackish salinity zone of this bay or estuary (0.5% < salinity < 25.0%).

X = EFH has been designated within the square for a given species and life stage.

Source: NMFS, 2002.

Windowpane flounder

Juveniles: Essential Fish Habitat (EFH) is bottom habitat with a substrate of mud or fine-grained sand; water temperatures below 25° C; depths from 1 to 100 meters; and salinities between 5.5 to 36 percent. Adults: Bottom habitats with a substrate of mud or fine-grained sand; water

temperatures below 26.8° C; depths from 1 to 75 meters; and salinities between 5.5 to 36 percent (NMFS, 2002).

Bluefish

Juveniles: Inshore, EFH is all major estuaries between Penobscot Bay, Maine and St. Johns River, Florida. Generally juvenile bluefish occur in Mid-Atlantic estuaries from May through October in the mixing and seawater zones. Adults: Inshore, EFH is all major estuaries on the U.S. Atlantic coast, including the James River. Adult bluefish are found in Mid-Atlantic estuaries from April through October, in the mixing and seawater zones. Bluefish adults are highly migratory and distribution varies seasonally and according to the size of the individuals comprising the schools (NMFS, 2002).

Atlantic Butterfish

Juveniles and Adults: Inshore, EFH is the mixing and/or seawater portions of all the estuaries where juvenile butterfish are "common" to "highly abundant" on the Atlantic coast, including the James River, Virginia. Generally, juvenile butterfish are found at depths between 33 feet and 1200 feet and temperatures between 37° F and 82° F (NMFS, 2002).

Summer Flounder

Larvae: Inshore EFH is all the estuaries where summer flounder were identified as being present in salinity zones greater than 0.5 ppt. In general, summer flounder larvae are most abundant nearshore (12 to 50 miles from shore) at depths between 30 to 230 feet. Juveniles: Inshore EFH is all of the estuaries where summer flounder were identified as being in salinity zones greater than 0.5 ppt. In general, juveniles use several estuarine habitats as nursery areas, including salt marsh creeks, seagrass beds, mudflats, and open bay areas in water temperatures greater than 37 °F and salinities from 10 to 30 ppt range. Adults: Inshore, EFH is the estuaries where summer flounder were identified as being common, abundant, or highly abundant in the Estuarine Living Marine Resources (ELMR) database in salinity zones greater than 0.5 ppt. Generally summer flounder inhabit shallow coastal and estuarine waters during warmer months and move offshore on the outer Continental Shelf at depths of 500 ft in colder months. The specific designation of Habitat Areas of Particular Concern (HAPC) for summer flounder is as follows: "All native species of macroalgae, seagrasses, and freshwater and tidal macrophytes in any size bed, as well as loose aggregations, within adult and juvenile summer flounder EFH is HAPC. If native species of submerged aquatic vegetation are eliminated then exotic species should be protected

because of functional value, however, all efforts should be made to restore native species” (NMFS, 2002).

Black Sea Bass

Juveniles: Inshore, EFH is the estuaries where black sea bass are identified as being common, abundant, or highly abundant in the ELMR database in salinity zones greater than 0.5 ppt. Juveniles are found in the estuaries in the summer and spring. “Generally, juvenile black sea bass are found in waters warmer than 43° F with salinities greater than 18 ppt and coastal areas between Virginia and Massachusetts, but winter offshore from New Jersey and south. Juvenile black sea bass are usually found in association with rough bottom, shellfish and eelgrass beds, man-made structures in sandy-shelly areas; offshore clam beds and shell patches may also be used during the wintering.” Adults: Inshore, EFH is the estuaries where adult black sea bass were identified as being common, abundant, or highly abundant in the ELMR database for salinity zones greater than 0.5 ppt. Black sea bass are generally found in estuaries from May through October. Wintering adults are generally offshore, south of New York to North Carolina. Temperatures above 43° F seem to be the minimum requirements. Structured habitats (natural and man-made), sand and shell are usually the substrate preference (NMFS, 2002).

King Mackerel, Spanish Mackerel, Cobia

Essential fish habitat for these three coastal migratory pelagic species includes all coastal inlets and all state-designated nursery habitats of particular importance to coastal migratory pelagics. For cobia, essential fish habitat also includes high salinity bays, estuaries, and seagrass habitat (NMFS, 2002).

Red Drum

Essential Fish Habitat for Red Drum includes all of the following habitats to a depth of 50 meters offshore: tidal freshwater; estuarine emergent vegetated wetlands (flooded saltmarshes, brackish marsh, tidal creeks); submerged rooted vascular plants (sea grasses); oyster reefs and shell banks; unconsolidated bottom (soft sediments); and artificial reefs. The area includes the James River in Virginia. HAPC for red drum includes all coastal inlets, all state-designated nursery habitats of particular importance to red drum; other identified spawning areas in the future; and habitats identified for submerged aquatic vegetation. Seagrass beds or SAV prevalent in the Chesapeake Bay are critical areas for 1 and 2 year old red drum. “Seagrass beds, shallow areas of estuarine rivers and mainland shorelines, are where many red drum reside during the summer. The various

inlets, adjoining channels, sounds, and outer bars of ocean inlets are critical areas for spawning activity as well as feeding and daily movements and may be affected by constant dredging, jettying or excessive boat traffic. Adult red drum spend a lot of time in these areas during spring and fall with large concentrations located near the least trafficked inlets”(NMFS, 2002).

Kepone and Dredging

The chlorinated hydrocarbon pesticide Kepone (chlordecone) was introduced into the James River at Hopewell, Virginia for several years prior to 1975 when releases stopped and the James River was closed to all forms of fishing (Loesch, et al., 1982). Fishing bans have since been lifted, but researchers have been concerned about the effects of dredging on re-suspending Kepone-contaminated sediments into the water column. Aquatic organisms can ingest Kepone either through exposure to contaminated water or by eating contaminated food (Lunsford, et al., 1987). Filter feeders low on the food chain like clams are most likely to absorb Kepone from concentrations dissolved in the water column.

Scientific studies on the effects of Kepone and dredging on the 9 fish species with EFH in the James River are not available. However, in a study by Lunsford and others (1987), uptake of Kepone by wedge clams (*Rangia cuneata*) was monitored during dredging in the James River estuary in autumn 1981. After two weeks of dredging, wedge clams downstream of the dredging were observed with a 0.01 µg/g to 0.04 µg/g increase in tissue contamination with Kepone (Lunsford, et al., 1987). In 1987, shellfish in the James River estuary had Kepone contamination levels below the Food and Drug Administration (FDA) action level of 0.3 µg/g. An increase in Kepone contamination of 0.01 µg/g to 0.04 µg/g would not be expected push most organisms past the FDA action level (Lunsford, et al., 1987).

Kepone levels in the James River estuary water column are generally highest from July to September, which is thought to be associated with high concentrations of phytoplankton during that period (Lunsford and Blem, 1982). Wedge clams monitored from September 1978 to August 1979 had maximum Kepone tissue concentrations in late autumn or early winter, and lowest concentrations in spring (Lunsford and Blem, 1982). Wedge clams appear to concentrate Kepone in their bodies during the summer. Dredging activities in the spring and summer could contribute to the increased uptake of Kepone by bivalves by putting extra Kepone into the water column at the time when bivalves are most likely to absorb it (Lunsford and Blem, 1982).

Roberts and Bendl (1982) studied the acute toxicity of Kepone in the water column to three species of fish. American eel (*Anguilla rostrata*), bluegill (*Lepomis macrochirus*), and channel catfish (*Ictalurus punctatus*) were exposed to Kepone in water under laboratory conditions to determine their 96 hour LC50, which is the concentration of Kepone at which 50 percent of the fish die after being exposed for 96 hours. Results indicate the 96 hour LC50s for American eel in the elvers stage, bluegill and channel catfish, were 35 µg/L, 30 to 66 µg/L, and 512 µ/L, respectively. Researchers also determined the maximum acceptable toxicant concentration (MATC), which is “the maximum concentration of a compound which can occur dissolved in water without causing long-term effects for various species” (Roberts and Bendl, 1982). The MATCs for American eel, bluegill and channel catfish were 0.14 µg/L, 0.20 µg/L, and 2 µg/L, respectively. A reported literature value for ambient Kepone concentrations in the James River near Skiffes Creek was 5 µg/L, which was 2 to 3 orders of magnitude lower than the MATCs above (Slone and Bender, 1980, cited in Roberts and Bendl, 1982). One interesting note is that, “freshwater fishes appear more tolerant to Kepone than marine fishes” (Roberts and Bendl, 1982).

Blue crabs and anadromous fishes can absorb Kepone by eating Kepone-contaminated food (Fisher, et al., 1983; Lunsford, et al., 1987). In a study by Fisher and others (1983), juvenile blue crabs were fed food contaminated with Kepone at different levels within the range observed in the James River (<0.02 µg/g to 2.5 µg/g). Crab mortality was no different for the Kepone treatments versus the Kepone-free controls, therefore the authors concluded that food uptake of Kepone at levels found in the environment was not a problem for blue crabs (Fisher, et al., 1983). Other laboratory experiments performed on estuarine fish observed no lethal or sub-lethal behavioral effects on fish exposed to Kepone-contaminated water until the fish were exposed to Kepone at concentrations several orders of magnitude higher than normal conditions in the James River (Roberts and Bendl, 1982). This finding is consistent with the observation that in the 1970's there were no large Kepone-related fish kills in portions of the river that received Kepone effluent (Roberts and Bendl, 1982).

In 1987, Fort Eustis commissioned a study to identify toxic chemicals and metals in sediment cores taken from dredge and disposal sites in the vicinity of the main pier at the Third Port (Environmental Testing Services, 1987). Most of the chemicals and metals tested, including PCBs, were below detection limits for most of the samples. All sediment cores analyzed had Kepone concentrations below the detection limit of 0.015 µg/g.

In April 2002, Fort Eustis conducted another sediment sampling study to identify metals, pesticides, and mercury beneath the main pier at Third Port as part of an Environmental Assessment for pier removal, replacement, and dredging. Arsenic was the only substance found at levels above the Environmental Protection Agency Region 3 Risk-Based Concentration (RBC) of 3.82 mg/kg. Arsenic concentrations of 5.1 to 7.1 mg/kg were observed. However, this level was within the mean soil background range of 0.1 to 40 mg/kg. Kepone was not detected in sediment samples in April 2002 (IMS Environmental Services, 2002).

Because the MARAD Facility Access Channel has not been dredged since 1968, in November 2002 the U.S. Army Corps of Engineers, Norfolk District tested the sediment that would be dredged from this channel. Results of this testing will be included when available.

[Insert MARAD sampling results here]

Environmental Consequences

Short-term minor adverse effects on essential fish habitat would be expected from dredging approximately 500,000 cubic yards of sediment to deepen the Skiffes Creek Channel and 180,000 cubic yards of sediment to deepen the MARAD Facility Access Channel. Hydraulic dredging techniques with disposal on land would be expected to suspend only a minor amount of sediment in the water column, which could have minor adverse effects on fish eggs and larvae. Because slight increases in Kepone contamination in wedge clams were observed after dredging in the James River in 1981, slight increases in Kepone contamination of fish and shellfish could be possible after dredging for this project. However, during dredging activities aquatic organisms near the dredged channels would not be expected to absorb enough Kepone to exceed the FDA action limit for safe consumption. Recent sediment sampling at the mouth of Skiffes Creek found no detectable levels of kepone. As an additional precaution, sediment in the MARAD was sampled for toxic chemicals, including Kepone, before dredging for this project. Furthermore, fish and bivalves have been observed to naturally rid their bodies of (depurate) Kepone over time (Roberts and Bendl, 1982; Lunsford et al, 1987). However, blue crabs depurate Kepone very slowly (Fisher, et al. 1983).

Overall, short-term minor adverse effects would be expected to fish species with EFH designations in the James River Estuary because time-of-year restrictions on dredging would be

expected to protect fish during spring migration and spawning. The Virginia Department of Game and Inland Fisheries is expected to recommend that no dredging occur in the James River from 15 February to 30 June to protect anadromous fish. No impacts to wetlands, submerged aquatic vegetation, natural reefs, wrecks, water flow, salinity or temperature would be expected from dredging the Skiffes Creek and MARAD Access Channels.

Cumulative Effects

Effects of dredging on EFH would be expected to be minor and short-lived. One study of the effects of dredging Kepone-contaminated sediments have shown only small (0.01 µg/g to 0.04 µg/g) increases in Kepone concentrations in clams. Kepone bioaccumulation would not be expected from dredging because fish and bivalves have been observed to depurate Kepone over time. Dredged sediment will be disposed on land, reducing the prevalence of potentially contaminated sediments in James River aquatic environments.

Works Cited

- Environmental Testing Services. 1987. The Chemical Characterization of Sediment Cores from Dredge and Disposal Sites Located at Fort Eustis, Virginia. Final Report, submitted to Langley and McDonald Engineering Consultants, Virginia Beach, Virginia.
- Fisher, D.J., M.E. Bender, and M.H. Roberts. 1983. Effects of Ingestion of Kepone-Contaminated Food by Juvenile Blue Crabs (*Callinectes sapidus* Rathbun). *Aquatic Toxicology* 4(1983):219-234.
- IMS Environmental Services. 2002. Sediment Sampling Report, United States Army Corps of Engineers, Norfolk District, Third Port Pier, Fort Eustis, Newport News, Virginia. IMS, Inc., Chesapeake, Virginia, April 12, 2002.
- [Place holder for IMS Results for November MARAD Channel sampling]**
- Loesch, J.G., R.J. Huggett, and E.J. Foell. 1982. Kepone Concentration in Juvenile Anadromous Fishes. *Estuaries* 5(3):175-181.
- Lunsford, C.A., M.P. Weinstein, and L. Scott. 1987. Uptake of Kepone by the Estuarine Bivalve *Rangia cuneata*, During The Dredging Of Contaminated Sediments In The James River, Virginia. *Water Resources* 21(4):411-416.
- National Marine Fisheries Service (NMFS). 2002. Guide to Essential Fish Habitat Designations in the Northeastern United States. Electronic Source <http://www.nero.nmfs.gov/ro/doc/list.htm>. Accessed February 20, 2002.
- Roberts, Jr., M.H., and R.E. Bendl. 1982. Acute Toxicity of Kepone to Selected Freshwater Fishes. *Estuaries* 5(3):158-164.

Slone, H., and M.E. Bender. 1980. Skiffes Creek Dredge Monitoring Program. U.S. Army Corps of Engineers, Final Report from Virginia Institute of Marine Science.

Appendix H
Record of Non-Applicability (RONA)
and
Air Quality Model

**RECORD OF NON-APPLICABILITY CONCERNING THE
GENERAL CONFORMITY RULE
(Code of Federal Regulations (CFR), Title 40 Part 51)**

Fort Eustis, Virginia, was established in 1918 on 9,000 acres along the James River. Following creation of the Transportation Corps in 1942, in 1950 Fort Eustis became the U.S. Army Transportation Center and Fort Eustis. The installation today is the home of the U.S. Army Transportation Corps.

The Army proposes to dredge Skiffes Creek to allow all necessary ships access to the Third Port Facility. Dredging operations include the dredging of Skiffes Creek, the construction effort to expand the disposal site berm, and disposal of the dredged material. This construction activity would induce short-term minor effects on local air quality. Fort Eustis is located in a maintenance area for ozone and is in attainment for all other criteria pollutants.

Conformity under the Clean Air Act, Section 176, has been evaluated for the proposed action in accordance with 40 CFR Part 51. The requirements of this rule are not applicable to this action because the total direct and indirect emissions associated with the proposed action would be below the *de minimis* threshold. Estimated direct and indirect emissions for year with the greatest intensity of work are described in Table 1. All emissions would fall well below the *de minimis* threshold established at 40 CFR 51.853(b) of 100 tons per year for volatile organic compounds (VOCs) and 100 tons per year for nitrogen oxides (NO_x). Therefore, the project/action is not considered regionally significant under 40 CFR 51.853(i).

**Table 1
De minimis Levels for Criteria Pollutants in the Newport News-Virginia
Beach-Norfolk Metropolitan Statistical Area, and Estimated Emissions
of the Proposed Project**

Criteria Pollutant	<i>De Minimis</i> Level (tons/Year)	Estimated Emissions (tons/year)
VOC	100	0.194
NO _x	100	3.019
CO	*	1.261
PM-10	*	0.214
SO ₂	*	0.296

Source: Tetra Tech, Inc. 2002.

Note: * - Not a maintenance area for these pollutants.

Stephen A. McCall
Chief, Environmental and Natural Resources Division
US Army Transportation Center
Fort Eustis, Virginia

Date

Scenario Details

Scenario Name: Skiffs Creek

Scenario Notes:

Analysis Tree:

- Skiffs Creek (Branch #1)
 - Bulldozer (Branch #2)
 - Weekly Use (Branch #3)
 - Trucks (Branch #4)
 - Weekly Use (Branch #5)
 - Dredging Equipment (Branch #6)
 - Weekly Use (Branch #7)

Branch Details:

Branch #1

Branch Name: Skiffs Creek

Values:

Inputs:

Constants:

References:

Equations:

Reactive Organics = 0.194 tons

Nitrogen Oxide = 3.019 tons

Carbon Monoxide = 1.261 tons

Sulfur Oxides = 0.296 tons

Particulate Matter = 0.214 tons

Equations:

Reactive Organics: @SumSubAnalyses({Reactive Organics})

Nitrogen Oxide: @SumSubAnalyses({Nitrogen Oxide})

Carbon Monoxide: @SumSubAnalyses({Carbon Monoxide})

Sulfur Oxides: @SumSubAnalyses({Sulfur Oxides})

Particulate Matter: @SumSubAnalyses({Particulate Matter})

Branch #2

Branch Name: Bulldozer

Values:

Inputs:

Equipment Type = Tracked Dozer

Constants:

References:

Equations:

Carbon Monoxide = 0.27 tons

Nitrogen Oxide = 0.677 tons

Particulate Matter = 0.056 tons

Reactive Organics = 0.06 tons

Sulfur Oxides = 0.057 tons

Equations:

Carbon Monoxide: @SumSubAnalyses({Carbon Monoxide})

Nitrogen Oxide: @SumSubAnalyses({Nitrogen Oxide})

Particulate Matter: @SumSubAnalyses({Particulate Matter})

Reactive Organics: @SumSubAnalyses({Reactive Organics})

Sulfur Oxides: @SumSubAnalyses({Sulfur Oxides})

Branch #3

Branch Name: Weekly Use

Values:

Inputs:

Active Weeks per Year = 40.0

Equipment Type = Tracked Dozer

Number of Units = 1.0

Hours per Active Week = 20.0 hours

Constants:

Modal Emission - CO = 306.37 gm/hr

Modal Emission - PM10 = 63.2 gm/hr

Modal Emission - ROG = 67.672 gm/hr

Modal Emission - SOx = 64.7 gm/hr

Modal Emission - NOx = 767.3 gm/hr

References:

Equations:

Carbon Monoxide = 0.27 tons

Nitrogen Oxide = 0.677 tons

Particulate Matter = 0.056 tons

Reactive Organics = 0.06 tons

Sulfur Oxides = 0.057 tons

Annual Hours of Use = 800.0 Hours

Equations:

Carbon Monoxide: {Annual Hours of Use}*{Modal Emission - CO}/(2000*453.5923745)

Nitrogen Oxide: {Annual Hours of Use}*{Modal Emission - NOx}/(2000*453.5923745)

Particulate Matter: {Annual Hours of Use}*{Modal Emission - PM10}/(2000*453.5923745)

Reactive Organics: {Annual Hours of Use}*{Modal Emission - ROG}/(2000*453.5923745)

Sulfur Oxides: {Annual Hours of Use}*{Modal Emission - SOx}/(2000*453.5923745)

Annual Hours of Use: {Number of Units}*{Hours per Active Week}*{Active Weeks per Year}

Branch #4

Branch Name: Trucks

Values:

Inputs:

Equipment Type = Off-highway Truck

Constants:

References:

Equations:

Carbon Monoxide = 0.72 tons
 Nitrogen Oxide = 1.666 tons
 Particulate Matter = 0.102 tons
 Reactive Organics = 0.075 tons
 Sulfur Oxides = 0.182 tons

Equations:

Carbon Monoxide: @SumSubAnalyses({Carbon Monoxide})
 Nitrogen Oxide: @SumSubAnalyses({Nitrogen Oxide})
 Particulate Matter: @SumSubAnalyses({Particulate Matter})
 Reactive Organics: @SumSubAnalyses({Reactive Organics})
 Sulfur Oxides: @SumSubAnalyses({Sulfur Oxides})

Branch #5

Branch Name: Weekly Use

Values:

Inputs:

Active Weeks per Year = 40.0
 Equipment Type = Off-highway Truck
 Number of Units = 1.0
 Hours per Active Week = 20.0 hours

Constants:

Modal Emission - CO = 816.81 gm/hr
 Modal Emission - PM10 = 116.0 gm/hr
 Modal Emission - ROG = 84.738 gm/hr
 Modal Emission - SOx = 206.0 gm/hr
 Modal Emission - NOx = 1,889.16 gm/hr

References:

Equations:

Carbon Monoxide = 0.72 tons
 Nitrogen Oxide = 1.666 tons
 Particulate Matter = 0.102 tons
 Reactive Organics = 0.075 tons
 Sulfur Oxides = 0.182 tons
 Annual Hours of Use = 800.0 Hours

Equations:

Carbon Monoxide: {Annual Hours of Use}*{Modal Emission - CO}/(2000*453.5923745)
 Nitrogen Oxide: {Annual Hours of Use}*{Modal Emission - NOx}/(2000*453.5923745)
 Particulate Matter: {Annual Hours of Use}*{Modal Emission - PM10}/(2000*453.5923745)
 Reactive Organics: {Annual Hours of Use}*{Modal Emission - ROG}/(2000*453.5923745)
 Sulfur Oxides: {Annual Hours of Use}*{Modal Emission - SOx}/(2000*453.5923745)
 Annual Hours of Use: {Number of Units}*{Hours per Active Week}*{Active Weeks per Year}

Branch #6

Branch Name: Dredging Equipment

Values:

Inputs:

Equipment Type = Other Miscellaneous Equipment

Constants:

References:

Equations:

Carbon Monoxide = 0.27 tons

Nitrogen Oxide = 0.677 tons

Particulate Matter = 0.056 tons

Reactive Organics = 0.06 tons

Sulfur Oxides = 0.057 tons

Equations:

Carbon Monoxide: @SumSubAnalyses({Carbon Monoxide})

Nitrogen Oxide: @SumSubAnalyses({Nitrogen Oxide})

Particulate Matter: @SumSubAnalyses({Particulate Matter})

Reactive Organics: @SumSubAnalyses({Reactive Organics})

Sulfur Oxides: @SumSubAnalyses({Sulfur Oxides})

Branch #7

Branch Name: Weekly Use

Values:

Inputs:

Active Weeks per Year = 40.0

Equipment Type = Other Miscellaneous Equipment

Number of Units = 1.0

Hours per Active Week = 20.0 hours

Constants:

Modal Emission - CO = 306.37 gm/hr

Modal Emission - PM10 = 63.2 gm/hr

Modal Emission - ROG = 67.672 gm/hr

Modal Emission - SOx = 64.7 gm/hr

Modal Emission - NOx = 767.3 gm/hr

References:

Equations:

Carbon Monoxide = 0.27 tons

Nitrogen Oxide = 0.677 tons

Particulate Matter = 0.056 tons

Reactive Organics = 0.06 tons

Sulfur Oxides = 0.057 tons

Annual Hours of Use = 800.0 Hours

Equations:

Carbon Monoxide: {Annual Hours of Use}*{Modal Emission - CO}/(2000*453.5923745)

Nitrogen Oxide: {Annual Hours of Use}*{Modal Emission - NOx}/(2000*453.5923745)

Particulate Matter: {Annual Hours of Use}*{Modal Emission - PM10}/(2000*453.5923745)

Reactive Organics: {Annual Hours of Use}*{Modal Emission - ROG}/(2000*453.5923745)

Sulfur Oxides: $\{\text{Annual Hours of Use}\} \times \{\text{Modal Emission - SOx}\} / (2000 \times 453.5923745)$

Annual Hours of Use: $\{\text{Number of Units}\} \times \{\text{Hours per Active Week}\} \times \{\text{Active Weeks per Year}\}$

Scenario Name: Skiffes Creek

Prepared By: Tetra Tech, Inc.

Prepared on: 11/14/2002

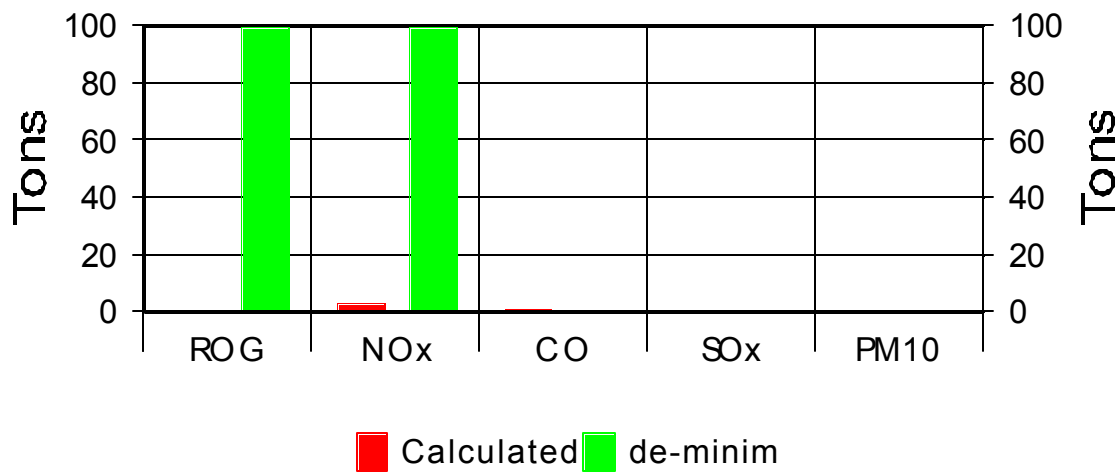
Last Updated on: 11/14/2002

Attainment Information:

State: Virginia

Attainment Zone: Norfolk, VA Beach, Newport News, VA Area

Chemical	Value (tons)	de-minimus
ROG	.194	100
NOx	3.019	100
CO	1.261	NA
SOx	.296	NA
PM10	.214	NA



Notes:

ACRONYMS AND ABBREVIATIONS

AR	Army Regulation	VDNH	Virginia Division of Natural
BMP's	Best management practices		Heritage
CAA	Clean Air Act	VOCs	volatile organic compounds
CEQ	Council on Environmental Quality		
CERCLA	Comprehensive Environmental Response, Compensation and Liabilities Act		
CFR	Code of Federal Regulations		
CO	carbon monoxide		
dB	decibels		
DCR	Department of Conservation and Recreation		
DNH	Division of Natural Heritage		
EA	Environmental Assessment		
EFH	Essential Fish Habitat		
FDA	Food and Drug Administration		
FEDMMA	Fort Eustis Dredged Material Management Area		
FNSI	Finding of No Significant Impact		
HM	hazardous materials		
HW	hazardous waste		
HWM SOP	Hazardous Waste Management Standing Operating Procedure		
LOTS	Logistics over the shore		
µg/g	micrograms per gram		
MARAD	Maritime Administration		
MLLW	Mean Low Low Water		
m.s.l.	mean sea level		
NEPA	National Environmental Policy Act		
NO _x	nitrogen oxides		
NPL	National Priority List		
NRHP	National Register of Historic Places		
pH	hydrogen ion potential		
PM-10	particulate matter smaller than 10 microns (i.e., inhalable particulate matter)		
POL	Petroleum, oil, lubricant		
ROI	Region of Influence		
RONA	Record of Non-applicability		
SHPO	State Historic Preservation Office		
USACE	U.S. Army Corps of Engineers		
USFWS	U.S. Fish and Wildlife Service		
VADEQ	Virginia Department of Environmental Quality		
VCRMP	Virginia Coastal Resources Management Program		

APPENDIX D
COASTAL CONSISTENCY DETERMINATION

**Coastal Zone Management Act (CZMA) Consistency Determination
for the Skiffes Creek Channel located at the
Joint Base Langley-Eustis (JBLE) on Fort Eustis
in Newport News, Virginia**

On behalf of the 7th Transportation Brigade (Expeditionary) and 733d Civil Engineer Division at the U.S. Army Transportation Center Fort Eustis, this document provides the Commonwealth of Virginia with the U.S. Army Corps of Engineers, Norfolk District's (Corps) Coastal Consistency Determination (CCD) under CZMA section 307(c)(1) and 15 CFR Part 930, sub-part C, Skiffes Creek Channel maintenance dredging at the JBLE on Fort Eustis in Newport News, Virginia and dredged material disposal at the Norfolk Ocean Disposal Site (NODS). The information in this CCD is provided pursuant to 15 CFR Section 930.39.

Proposed Federal Agency Activity

The proposed federal action is the continued maintenance dredging of the Skiffes Creek Channel at Fort Eustis, Virginia consistent with previous maintenance cycles and CCD and dredged material disposal at the NODS. The NODS was officially designated as an ocean placement site in 1993 pursuant to Section 102c of the Marine Protection, Research, and Sanctuaries Act of 1972 (as amended, 33 U.S.C. 1401 et seq). The proposed action would entail mechanically dredging the Skiffes Creek Channel to an average depth of -23 feet mean lower low water (MLLW) for a length of 7,764 feet, -20 feet MLLW for a length of 690 feet, and -14 feet MLLW for a length of 715 feet. An estimated 325,000 cubic yards of material would be dredged during the current maintenance cycle. Each future dredging cycle may remove up to 1 MCY of sediment from the channel and suitable dredged material will be transported and disposed at the NODS in accordance with Section 103 of the MPRSA. A Supplemental Environmental Assessment (SEA) of the proposed action has been prepared by the U.S. Army corps of Engineers, Norfolk District.

Background

The 733d Engineer Division, an assigned tenant element of the U.S. Army Transportation Center Fort Eustis (USATCFE), is responsible for maintenance dredging of the Skiffes Creek Channel accessing the Third Port. The Third Port is a deepwater port used to train personnel in cargo logistics and vessel operations. The facility provides a safe harbor for the 7th Group's watercraft fleet and serves as a deployment platform for Army units. In addition, it is a joint service training facility for watercraft operators and cargo handlers. There are 61 vessels assigned to the Third Port and commercial vessels that access two industrial complexes located upstream also use Skiffes Creek.

Enforceable Policies

The Virginia Coastal Resources Management Program (VCP) contains the below enforceable policies (A-I). More information can be found in the Final Environmental Assessment for this project.

A. Fisheries Management

This program stresses the conservation and enhancement of finfish and shellfish resources and the promotion of commercial and recreational fisheries to maximize food production and recreational opportunities.

The SEA will be coordinated with the VMRC. The VMRC has issued a No Permit Required letter for the maintenance dredging of Skiffes Creek Channel through the permitting process.

B. Subaqueous Lands Management

This management program for subaqueous lands establishes conditions for granting or denying permits to use state-owned bottomlands based on considerations of potential effects on marine and fisheries resources, wetlands, adjacent or nearby properties, anticipated public and private benefits, and water quality standards established by the Department of Environmental Quality, Water Division.

Impacts to water quality will be minor and temporary, consisting of localized increases in turbidity due to dredging. There is no Submerged Aquatic Vegetation within the project area; therefore, no impacts are anticipated. Dredged material disposal at the NODS will occur in the territorial sea beyond state waters.

C. Wetlands Management

The purpose of the wetlands management program is to preserve tidal and non-tidal wetlands, prevent their despoliation, and accommodate economic development in a manner consistent with wetlands preservation.

Wetlands are located near the project area. There are no wetlands located in the project area; therefore, no impacts are anticipated.

D. Dunes Management

Dune protection is carried out pursuant to the Coastal Primary Sand Dune Protection Act and is intended to prevent destruction or alteration of primary dunes.

There are no sand dunes located in the project area; therefore, no impacts are anticipated.

E. Non-point Source Pollution Control

Virginia's Erosion and Sediment Control Law requires soil-disturbing projects to be designed to reduce soil erosion and to decrease inputs of chemical nutrients and sediments to the Chesapeake Bay, its tributaries, and other rivers and waters of the Commonwealth.

The proposed project will occur entirely within the navigation channel to be dredged and the NODS. No soil-disturbing activities are planned to occur during the proposed project, and thus the provisions of the erosion and sediment control program do not apply to the proposed project.

F. Point Source Pollution Control

Point source pollution control is accomplished through the implementation of the National Pollutant Discharge Elimination System permit program established pursuant to Section 402 of the Federal Clean Water Act and administered in Virginia as the Virginia Pollutant Discharge Elimination System permit program.

The proposed project will not involve the use or creation of any point sources of pollution pursuant to Section 402 of the Clean Water Act. Dredged material transport and discharges will be regulated under the MPRSA Section 103.

G. Shoreline Sanitation

The purpose of this program is to regulate the installation of septic tanks, set standards concerning soil types suitable for septic tanks, and specify minimum distances that tanks must be placed away from streams, rivers, and other waters of the Commonwealth.

The proposed project does not include the installation, removal, or maintenance of septic tanks.

H. Air Pollution Control

The program implements the Federal Clean Air Act to provide a legally enforceable State Implementation Plan for the attainment and maintenance of the National Ambient Air Quality Standards (NAAQS).

The Clean Air Act prohibits Federal entities from taking actions which do not conform to the State implementation plan (SIP) for attainment and maintenance of the national ambient air quality standards (NAAQS).

Fort Eustis lies within a maintenance area for ozone for National Ambient Air Quality Standards and has estimated that the air emissions due to the proposed project will not violate provisions of Virginia's State Implementation Plan. A Record of Non-applicability was prepared in conjunction with the 2003 EA and is applicable to the continued maintenance dredging activities at Skiffes Creek Channel.

I. Coastal Lands Management

Coastal Lands Management is a state-local cooperative program administered by the DCR's Division of Stormwater Management – Local Implementation (previously the Division of Chesapeake Bay Local Assistance) and 88 localities in Tidewater, Virginia established

pursuant to the Chesapeake Bay Preservation Act; Virginia Code §§ 10.1-2100 through 10.1-2114 and Chesapeake Bay Preservation Area Designation and Management Regulations; Virginia Administrative code 9 VAC10-20-10 et seq.

While NOAA has determined that the CZMA does not grant states regulatory authority over activities on federal lands, federal activities affecting Virginia's coastal resources must be consistent with the Bay Act and the Regulations as one of the enforceable programs of Virginia's Coastal Zone Management Program.

This project involves the removal of sediment from the James River and Skiffes Creek. The project does not involve any development.

Advisory Policies for Geographic Area of Particular Concern

a. Coastal Natural Resource Areas

Coastal Natural Resource Areas are areas that have been designated as vital to estuarine and marine ecosystems and/or are of great importance to areas immediately inland of the shoreline. These areas include the following resources: wetlands, aquatic spawning, nursing, and feeding grounds, coastal primary sand dunes, barrier islands, significant wildlife habitat areas, public recreation areas, sand gravel resources, and underwater historic sites.

The project area may contain spawning, nursing, and/or feeding grounds for finfish and shellfish. Habitat for finfish and shellfish will not be harmed and may be improved as a result of this project. Informal Section 7 consultation under the Endangered Species Act (ESA) for the maintenance dredging activities in Skiffes Creek Channel has been completed with the National Marine Fisheries Service (NMFS). Formal ESA Section 7 consultation was completed with NMFS for ocean disposal activities at the NODS has been completed with the NMFS. Essential Fish Habitat (EFH) Assessment was completed as part of the 2003 EA and an updated EFH worksheet has been coordinated with NOAA Fisheries. Both are included with the supplemental EA as an appendix.

b. Coastal Natural Hazard Areas

This policy covers areas vulnerable to continuing and severe erosion and areas susceptible to potential damage from wind, tidal, and storm related events including flooding. New buildings and other structures should be designed and sited to minimize the potential for property damage due to storms or shoreline erosion. The areas of concern are highly erodible areas and coastal high hazard areas, including flood plains.

The project area contains no coastal natural hazard areas; therefore, adherence to this program is not applicable.

c. Waterfront Development Areas

These areas are vital to the Commonwealth because of the limited number of areas suitable for waterfront activities. The areas of concern are commercial ports, commercial fishing piers, and community waterfronts.

There are no commercial fishing piers and/or community waterfronts located in the project area. This project, however, does provide access to ports, and keeping those ports operational is in accordance with the intent of this advisory policy.

Advisory Policies for Shorefront Access Planning and Protection

a. Virginia Public Beaches

These public shoreline areas will be maintained to allow public access to recreational resources.

There are no public beaches within the project area; consequently this project will not affect public access to beaches.

b. Virginia Outdoors Plan (VOP)

The VOP, which is published by Virginia's Department of Conservation and Recreation (DCR), identifies recreational facilities in the Commonwealth that provide recreational access. Prior to initiating any project, consideration should be given to the proximity of the project site to recreational resources identified in the VOP.

No public access points exist near the project site. The installation is guarded 24-hours per day.

c. Parks, Natural Areas, and Wildlife Management Areas

The recreational values of these areas should be protected and maintained.

The project area contains no Parks, Natural Areas, or Wildlife Management Areas.

d. Waterfront Recreational Land Acquisition

It is the policy of the Commonwealth to protect areas, properties, lands, or any estate or interest therein, of scenic beauty, recreational utility, historical interest, or unusual features which may be acquired, preserved, and maintained for the citizens of the Commonwealth.

This project does not limit the ability of the Commonwealth in any way to acquire, preserve, or maintain waterfront recreational lands.

e. Waterfront Recreational Facilities

Boat ramps, public landings, and bridges shall be designed, constructed, and maintained to provide points of water access when and where practicable.

This project does not involve the design, construction, or maintenance of any boat ramps, public landings, or bridges.

f. *Waterfront Historic Properties*

The Commonwealth has a long history of settlement and development, and much of that history has involved both shorelines and near-shore areas. The protection and preservation of historic shorefront properties is primarily the responsibility of the Virginia Department of Historic Resources.

Maintenance dredging activities have been coordinated with the State Historic Preservation Office (SHPO). Since the proposed action is maintenance dredging of channels previously dredged, the proposed action would not affect any known architectural or archeological resources listed in or eligible for the NRHP or Virginia Landmarks Register.

Determination

Based upon the following information, data, and analysis, the U.S. Army Corps of Engineers, Norfolk District, on behalf of the 7th Sustainment Transportation Group at the U.S. Army Transportation Center Fort Eustis, finds that is the dredging of the Skiffes Creek Channel and dredged material disposal at the NODS is consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Resources Management Program.

Pursuant to 15 CFR Section 930.41, the Virginia Coastal Resources Management Program has 60 days from the receipt of this letter in which to concur with or object to this Consistency Determination, or to request an extension under 15 CFR section 930.41(b). Virginia's concurrence will be presumed if its response is not received by the U.S. Army Corps of Engineers on the 60th day from receipt of this determination.

4/21/14
Date

Elizabeth G. Waring
Elizabeth G. Waring
Chief, Operations Branch



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 629 East Main Street, Richmond, Virginia 23219

Mailing address: P.O. Box 1105, Richmond, Virginia 23210

Fax: 804-698-2019 • *TDD:* (804) 698-4021

www.deq.virginia.gov

Melby Joseph Ward
Secretary of Natural Resources

David R. Fryer
Director

PH: (804) 698-4021
TDD: (804) 698-4021

May 29, 2014

Ms. Elizabeth G. Waring
Chief, Operations Branch
U.S. Army Corps of Engineers, Norfolk District
803 Front Street (Fort Norfolk)
Norfolk, Virginia 23510

RE: Draft Supplemental Environmental Assessment and Federal Consistency
Determination for Skiffas Creek Federal Navigation Channel, Maintenance
Dredging (DEQ 14-077F)

Dear Ms. Waring:

The Commonwealth of Virginia has completed its review of the above-referenced Draft Supplemental Environmental Assessment (Draft SEA) and Federal Consistency Determination (FCD). The Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of federal environmental documents prepared pursuant to the National Environmental Policy Act and responding to appropriate federal officials on behalf of the Commonwealth. DEQ also coordinates Virginia's reviews of federal consistency determinations prepared pursuant to the Coastal Zone Management Act. The following state agencies and regional planning district commission joined in this review:

Department of Environmental Quality
Department of Game and Inland Fisheries
Department of Conservation and Recreation
Department of Historic Resources
Virginia Marine Resources Commission
Hampton Roads Planning District Commission

In addition, the following agency, institution, and locality were invited to comment:

Department of Agriculture and Consumer Services
Virginia Institute of Marine Science
City of Newport News

DESCRIPTION OF PROPOSED ACTION

The Army Corps of Engineers, as agent for the 7th Transportation Brigade at the U.S. Army Transportation Center at Joint Base Langley-Eustis at Fort Eustis (JBLE-Fort Eustis), has submitted a Draft Supplemental Environmental Assessment (Draft SEA), which includes a federal consistency determination (FCD), for a maintenance dredging project at Skiffes Creek and transporting dredged material for the purpose of ocean placement at the Norfolk Ocean Disposal Site (NODS). This Draft SEA and FCD supplement an EA prepared in 2003 which covered a project of restoring navigation to Skiffes Creek. Another EA was prepared in 2012 to take account of several changes. These included:

- Listing of the Atlantic sturgeon as a federal endangered species;
- De-listing of the bald eagle as an endangered species (the bald eagle is now afforded special protection under the Bald and Golden Eagle Protection Act, and a newly active nest is found near the project area);
- Major efforts by Fort Eustis to control the common reed (*Phragmites Australia*), including efforts in part of the project area;
- Alignment of Fort Eustis with the Air Force and the need to follow Air Force policies; and
- The fact that the Fort Eustis Dredged Material Management Area is nearing the end of its useful life.

(Draft SEA, page 5, "Executive Summary" heading.)

DEQ coordinated Virginia's review of the 2012 EA, responding under DEQ 12-141F (comments mailed August 28, 2012).

The proposed action, addressed in the new Draft SEA and FCD, involves maintenance dredging of the Skiffes Creek navigation channel and the transport of dredged material for ocean placement at the Norfolk Ocean Disposal Site. Dredged material not suitable for ocean placement will continue to be placed in the Fort Eustis Dredged Material Management Area (FEDMMA). Once that area reaches its limit, dredged material will be placed in appropriate upland placement sites (Draft SEA, page 9, sections 2.0 through 2.2; see also FCD, page 1, "Proposed Federal Agency Activity" heading (on-line file page 320)).

The Draft SEA also contemplates application of herbicides in the FEDMMA by certified applicators following label instructions (Draft SEA, page 9, section 2.1.2).

Alternatives considered include the following:

- No action, which would not accomplish the desired results (Draft SEA, page 17, section 3.1);

- Use of the Craney Island Dredged Material Management Area (CIDMMA), which would not be viable, because Skiffes Creek is outside the Congressionally mandated service area for the CIDMMA (Draft SEA, page 18, section 3.2);
- Overboard placement areas in the James River, which are considered not viable because of area limitations imposed by the Marine Resources Commission and the presence and density of shellfish resources (Draft SEA, page 18, section 3.3), and
- Beneficial uses of dredged material in near-shore areas surrounding the Skiffes Creek Channel, which may conflict with other permitted uses and, in any case, are subject to natural constraints because of the fine-grained material (page 18, section 3.4).

Finally, the Draft SEA focuses specifically on potential impacts relating to the placement of dredged material at the Norfolk Ocean Disposal Site. Issues include Atlantic sturgeon, bald eagles, and initiatives to control invasive grass (Draft SEA, page 19, section 4.1).

ENVIRONMENTAL IMPACTS AND MITIGATION

1. Wildlife Resources.

1(a) Agency Jurisdiction. The Department of Game and Inland Fisheries, as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state- or federally-listed endangered or threatened species, but excluding listed insects (Virginia Code Title 29.1). The DGIF is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S.C. sections 661 *et seq.*) and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce, or compensate for those impacts.

1(b) Findings; Analysis. DGIF documents bald eagle nests from the project area. The project site appears to be located within the James River Summer and Winter Bald Eagle Concentration Zone. Significant habitat alteration, location of water-dependent facilities within concentration zones, or other recreational and commercial activities may adversely affect eagles.

See also "Federal Consistency ...," "Analysis of Enforceable Policies" sub-heading, item 2(b), below.

1(c) Recommendations.

1(c)(i) Bald Eagle Protection. The Corps should ensure that the project is implemented consistently with state and federal guidelines for protection of bald eagles.

1(c)(ii) Coordination. See "Regulatory and Coordination Needs," item 3(a), below.

2. Natural Heritage Resources.

2(a) Agency Jurisdictions; Definition.

2(a)(1) Department of Conservation and Recreation. The mission of the Virginia Department of Conservation and Recreation (DCR) is to conserve Virginia's natural and recreational resources. The DCR-Natural Heritage Program's (DCR-DNH) mission is conserving Virginia's biodiversity through inventory, protection, and stewardship. The Virginia Natural Area Preserves Act (Virginia Code 10.1-209 through 10.1-217) codifies DCR's powers and duties related to statewide biological inventory, maintaining a statewide database for conservation planning and project review, land protection for the conservation of biodiversity, and the protection and ecological management of natural heritage resources.

2(a)(2) Department of Agriculture and Consumer Services. The Endangered Plant and Insect Species Act of 1979, Virginia Code Chapter 39, sections 3.1-102 through 33.1-1030, as amended, authorizes the Virginia Department of Agriculture and Consumer Services (VDACS) to conserve, protect and manage endangered species of plants and insects. Staff members of the VDACS Virginia Endangered Plant and Insect Species Program cooperate with the U.S. Fish and Wildlife Service, DCR-DNH and other agencies and organizations on the recovery, protection or conservation of listed threatened or endangered species and designated plant and insect species that are rare throughout their worldwide ranges. In instances where recovery plans, developed by the U.S. Fish and Wildlife Service, are available, adherence to the order and tasks outlined in the plans are followed to the extent possible.

2(a)(3) Definition. "Natural heritage resources" are defined as the habitats of rare, threatened, and endangered species, significant natural communities, geologic sites, and other natural features.

2(b) Findings. The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the maps in the Draft SEA. Biotics documents the presence of natural heritage resources in the project area. However, due to the scope of the activity and the distance to the resources, DCR does not anticipate that this project will adversely affect these natural heritage resources.

2(c) Natural Area Preserves. According to DCR, there are no state Natural Area Preserves under DCR's jurisdiction in the vicinity of the project.

2(d) Additional Information. The Virginia Department of Game and Inland Fisheries (DGIIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not

documented in this letter. The DGIF database may be accessed from <http://vatwis.org/twis/>. See "Regulatory and Coordination Needs," item 1(a)(i), below.

Because new and additional information is continually added to the DCR's Biotics Data System, the Corps is requested to re-submit project information and maps for an update on the above findings (items 2(b) and 2(c)) if the scope of the project changes and/or six months pass before the information is used. See "Regulatory and Coordination Needs," item 1(a)(ii), below.

3. Historic Structures and Archaeological Resources.

3(a) Agency Jurisdiction. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources under its jurisdiction. DHR, as the designated State's Historic Preservation Office (SHPO), ensures that federal actions comply with Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, and its implementing regulation at 38 CFR Part 800. The NHPA requires federal agencies to consider the effects of federal projects on properties that are listed or eligible for listing on the National Register of Historic Places. Section 106 also applies if there are any federal involvements, such as licenses, permits, approvals or funding.

3(b) Comments. Pursuant to section 106, the Department of the Army has been in direct consultation with the Department of the Air Force, Joint Base Langley-Fort Eustis and its agents regarding this dredging and disposal project. The parties have reached consensus that the project will result in no adverse effect on historic properties.

4. Regional and Local Concerns.

4(a) Jurisdiction; Planning District Commissions. In accordance with Virginia Code section 15.2-4207, planning district commissions encourage and facilitate local government cooperation and state-local cooperation in addressing, on a regional basis, problems of greater than local significance. This cooperation is intended to facilitate the recognition and analysis of regional opportunities and take account of regional influences in planning and implementing public policies and services. Planning district commissions promote the orderly and efficient development of the physical, social, and economic elements of the districts by planning, and encouraging and assisting localities to plan, for the future.

4(b) Comments.

4(b)(1) Hampton Roads Planning District Commission. The Hampton Roads Planning District Commission indicates that the proposed project appears consistent with local and regional plans and policies. The Commission consulted the staff of the City of Newport News as part of its review.

4(b)(2) City of Newport News. The City of Newport News did not respond to DEQ's request for comments.

FEDERAL CONSISTENCY UNDER THE COASTAL ZONE MANAGEMENT ACT

Pursuant to the Coastal Zone Management Act of 1972, as amended, federal actions that can have reasonably foreseeable effects on Virginia's coastal resources or coastal uses must be implemented in a manner consistent with the Virginia Coastal Zone Management Program (VCP). The VCP consists of a network of programs administered by several state agencies. In order to be consistent with the VCP, the project activities must be consistent with the enforceable policies of the VCP, and all the applicable permits and approvals listed under the enforceable policies of the VCP must be obtained prior to commencing the project. DEQ coordinates the review of FCDs with agencies administering the enforceable and advisory policies of the VCP.

Public Participation

In accordance with 15 CFR §930.2, a public notice of this proposed action was published on the DEQ website from May 12, 2014 to May 20, 2014. No public comments were received in response to the notice.

Federal Consistency Concurrence

The Army Corps of Engineers has determined that the proposed action will be conducted in a manner consistent, to the maximum extent practicable, with the enforceable policies of the Virginia Coastal Zone Management Program (FCD, page 6, "Determination" heading (file page 325)). Based on our review of the FCD and the comments submitted by agencies administering the enforceable policies of the VCP, DEQ concurs that the proposed action is consistent with the VCP, provided all applicable permits and approvals are obtained as described below. However, other state approvals which may apply to this action are not included in this FCD. Therefore, the Corps must also ensure that this action is carried out in accordance with all applicable federal, state, and local laws and regulations.

Analysis of Enforceable Policies

The following enforceable policies do not appear to apply to this project:

- Non-point Source Pollution Control (FCDE, pages 2-3, item E (file pages 321-322));
- Air Pollution Control (FCD, page 3, item H (file page 322));
- Coastal Lands Management (FCD, pages 3-4, item I (file pages 322-323));
- Shoreline Sanitation (FCD, page 3, item g (file page 322)); and
- Dunes Management (FCD, page 2, item D (file page 321)).

The analysis which follows responds to the discussion of the enforceable policies of the VCP that apply, or may apply, to the proposed action.

1. Subaqueous Lands Management. According to the FCD, impacts to water quality will be minor and temporary, and there is no submerged aquatic vegetation in the project area. Dredged material disposal at the NODS will occur beyond state territorial waters (FCD, page 2, item B).

1(a) Agency Jurisdiction. The Virginia Marine Resources Commission (VMRC), pursuant to Virginia Code sections 28.2-1200 *et seq.*, has jurisdiction over any encroachments in, on, or over any state-owned rivers, streams, creeks, or ocean in the Commonwealth. Accordingly, if any portion of the project involves any encroachments channelward of mean low water, a permit may be required from VMRC.

The VMRC also serves as the clearinghouse for the Joint Federal-State Permit Application (JPA) used by the:

- VMRC for encroachments on or over state-owned subaqueous beds as well as tidal wetlands;
- U.S. Army Corps of Engineers (Corps) for issuing permits pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act;
- DEQ for issuance of a Virginia Water Protection Permit; and
- local wetlands board for impacts to wetlands.

1(b) Comments. VMRC states that no permit will be required, because the project consists of federal agency maintenance dredging of a federal navigation channel.

1(c) Conclusion. VMRC does not disagree with the FCD insofar as the Subaqueous Lands Management enforceable policy of the VCP is concerned.

2. Fisheries Management. According to the FCD, the Virginia Marine Resources Commission (VMRC) has issued a "no permit required" letter for the maintenance dredging of Skiffes Creek Channel (FCD, page 2, item A (file page 321)).

2(a) Agency Jurisdiction. The Fisheries Management program stresses the conservation and enhancement of finfish and shellfish resources and the promotion of commercial and recreational fisheries to maximize food production and recreational opportunities. This program is administered by the VMRC (Virginia Code §28.2-200 to §28.2-713) and the Department of Game and Inland Fisheries (DGIF) (Virginia Code §29.1-100 to §29.1-570).

2(b) Findings. DGIF states that Atlantic sturgeon, a federally listed endangered species, has been documented from the project area. In addition, Skiffes Creek and the James River have been designated Anadromous Fish Use Areas.

2(c) Recommendations.

2(c)(i) Atlantic Sturgeon. With regard to the Atlantic sturgeon, DGIF recommends that the Corps coordinate with NOAA Fisheries Service (see "Regulatory and Coordination Needs," item 2, below).

2(c)(ii) Anadromous Fish Use Area: Time-of-Year Restriction. Because the project area is an Anadromous Fish Use Area, DGIF recommends that in conducting the dredging activity, the Corps adhere to a time-of-year restriction from February 15 through June 15 of any year.

2(c)(iii) Erosion Controls. DGIF recommends adherence to erosion and sediment controls during dredging and placement of dredged materials.

2(d) Conclusion. DGIF did not disagree with the federal consistency determination so far as it concerns the Fisheries Management enforceable policy of the VCP.

3. Point Source Pollution Control. The FCD states that the project will not involve the use or creation of any point sources of pollution contemplated under section 402 of the federal Clean Water Act. Dredged material and transport will be regulated under section 103 of the federal Marine Protection, Research, and Sanctuaries Act (FCD, page 3, item F (file page 322); see the evaluation report in Draft SEA, Appendix B, file pages 53-119 and attachments).

3(a) Agency Jurisdiction. The point source pollution control enforceable policy of the Virginia Coastal Zone Management Program is administered by the State Water Control Board (DEQ) pursuant to Virginia Code section 62.1-44.15. Point source pollution control is accomplished through the implementation of:

- (1) the National Pollutant Discharge Elimination System (NPDES) permit program established pursuant to Section 402 of the federal Clean Water Act and administered in Virginia as the Virginia Pollutant Discharge Elimination System (VPDES) permit program; and
- (2) the Virginia Water Protection Permit program administered by DEQ; Virginia Code §62.1-44.15:5 and Water Quality Certification pursuant to Section 401 of the Clean Water Act.

3(b) Comments. DEQ's Tidewater Regional Office (DEQ-TRO) has no comments regarding point-source water permits (VPDES (Virginia Pollutant Discharge Elimination System), VPA (Virginia Pollution Abatement), MS4 (municipal separate storm sewer systems)), or groundwater permitting.

3(c) Conclusion. DEQ-TRO did not object to the applicant's statement that no point sources of water pollution are proposed as part of the project.

4. Wetlands Management. According to the FCD, there are wetlands located near the project area, but none within it (FCD, page 2, item C (file page 321)).

4(a) Agency Jurisdiction. The State Water Control Board (SWCB) promulgates Virginia's water regulations, covering a variety of permits to include Virginia Pollutant Discharge Elimination System Permit, Virginia Pollution Abatement Permit, Surface and Groundwater Withdrawal Permit, and the Virginia Water Protection Permit (VWPP). The VWPP is a state permit which governs wetlands, surface water, and surface water withdrawals/impoundments. It also serves as § 401 certification of federal Clean Water Act § 404 permits for dredge and fill activities in waters of the U.S. The VWPP Program is under the Office of Wetlands and Stream Protection (OWSP), within the DEQ Division of Water Quality Programs.

4(b) Permit Applicability. As described in the submitted information (specifically, correspondence from the Corps dated February 11, 2014), the project qualifies for a 13-RP-02 on which DEQ has provided § 401 Certification, according to DEQ's Tidewater Regional Office (DEQ-TRO). Therefore, a Virginia Water Protection (VWP) permit will not be required by the DEQ for this project. If the project scope changes or if it is determined that the project no longer qualifies for a Nationwide or Regional Permit from the Corps, a permit or waiver from DEQ may be required. See "Regulatory and Coordination Needs," item 3, below.

4(c) Conclusion. DEQ-TRO did not object to the finding in the FCD relative to the Wetlands Management enforceable policy of the VCP.

5. Regional and Local Concerns.

5(a) Jurisdiction. In accordance with 15 CFR 930, Sub-part A, § 930.6(b) of the *Federal Consistency Regulations*, DEQ, on behalf of the state, is responsible for securing necessary review and comment from other state agencies, the public, regional government agencies, and local government agencies, in determining the Commonwealth's concurrence or objection to a federal consistency determination or certification.

5(b) Comments.

5(b)(1) Hampton Roads Planning District Commission. As stated above ("Environmental Impacts and Mitigation," item 4(b)), the Hampton Roads Planning District Commission indicates that the proposed project appears consistent with local and regional plans and policies. The Commission consulted the staff of the City of Newport News as part of its review.

5(b)(2) City of Newport News. As stated above ("Environmental Impacts and Mitigation," item 4(b)), the City of Newport News did not respond to DEQ's request for comments.

REGULATORY AND COORDINATION NEEDS

1. Natural Heritage Resources.

1(a) Coordination.

1(a)(i) Department of Game and Inland Fisheries Database Assistance. Questions about the DGIF database of wildlife locations (see "Additional Environmental Considerations," item 2(d), above) may be directed to the Department of Game and Inland Fisheries (Gladys Cason, telephone (804) 367-0909 or e-mail Gladys.cason@dgif.virginia.gov).

1(a)(ii) Department of Conservation and Recreation Natural Heritage Updates. As indicated above ("Environmental Impacts and Mitigation," item 2(d)), the Corps is requested to contact DCR's Division of Natural Heritage for updated information if the project scope changes or a period of six months or more passes after receipt of this letter (begin with Rene' Hypes, telephone (804) 371-2708 or e-mail rene.hypes@dcr.virginia.gov).

1(b) Authorities. Authorities for DCR's Natural Heritage Program include, but are not limited to, Virginia Code sections 10.1-209 through 10.1-217.

2. Fisheries Management Enforceable Policy.

2(a) Coordination. In order to effectively protect the Atlantic sturgeon, the Corps is requested to coordinate with NOAA Fisheries (David O'Brien, e-mail david.obrien@noaa.gov).

2(b) Authorities. Authorities for DGIF's activities protecting endangered species include, but are not limited to, Virginia Code sections 29.1-563 through 29.1-570.

3. Wildlife Resources.

3(a) Coordination. In order to effectively protect bald eagles from adverse impacts of the project (see also "Environmental Impacts and Mitigation," item 1(c)(i), above), the Corps is asked to coordinate with the Department of Game and Inland Fisheries (begin with Amy Ewing, telephone (804) 367-2211 or e-mail amy.ewing@dgif.virginia.gov) or with the Virginia Field Office of the U.S Fish and Wildlife Service (begin with Cindy Schullz, telephone (804) 693-6694).

3(b) Additional Information. See item 1(a)(i), above.

3(b) Authorities. See item 2(b), above.

4. Wetlands Management Enforceable Policy

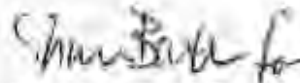
4(a) Coordination. As indicated above ("Federal Consistency...", "Analysis of Enforceable Policies" sub-heading, item 5(b)), if the project scope should change or if it is determined that the project no longer qualifies for a Nationwide or Regional Permit from the Corps, a permit or waiver from DEQ may be required. In either case, the Corps should consult with DEQ's Tidewater Regional Office (begin with Cindy Keltner, telephone (757) 518-2167 or e-mail cindy.keltner@deq.virginia.gov).

4(b) Authorities. Authorities for the Virginia Water Protection Program include, but are not limited to, the following:

- State Water Control Law, Virginia Code section 62.1-44.15:5D, requiring Virginia Water Protection Permits and prohibiting categories of activity in wetlands; and
- Regulations at 9 VAC 25-210-10, requiring avoidance of impacts, minimization of impacts, and compensating for unavoidable impacts.

Thank you for the opportunity to review the Draft SEA and FCD. If you have questions, please feel free to contact me (telephone (804) 698-4325 or e-mail ellie.iron@deq.virginia.gov) or Charles Ellis of this Office (telephone (804) 698-4195 or e-mail Charles.ellis@deq.virginia.gov).

Sincerely,



Ellie L. Irons, Program Manager
Environmental Impact Review

Enclosures

cc: Amy M. Ewing, DGIF
Keith R. Tignor, VDACS
Roberta D. Rhur, DCR
Cindy Keltner, DEQ-TRO
Larry Gavan, DEQ-OSM
Greg LaBudde, DHR
Michael Johnson, VMRC
Pamela Mason, VIMS
Benjamin D. McFarlane, Hampton Roads PDC
Everett Skipper, City of Newport News

From: Ewing, Amy (DGIF)
Sent: Thursday, May 22, 2014 2:43 PM
To: Ellis, Charles (DEQ)
Cc: Cason, Gladys (DGIF); Greenlee, Bob (DGIF); nhreview (DCR)
Subject: ESSlog# 18118_14-077F_Skiffes Creek Federal Navigation Channel dredging

We have reviewed the subject project that proposes to perform maintenance dredging of Skiffes Creek and the James River in Newport News, VA.

According to our records, federal Endangered Atlantic sturgeon have been documented from the project area. Therefore, we recommend coordination with NOAA Fisheries Service regarding protection of this species.

Skiffes Creek and the James River have been designated Anadromous Fish Use Areas. Therefore, we recommend that all dredging in this area adhere to a time of year restriction from February 15 through June 15 of any year.

We also document bald eagle nests from the project area and this site appears to be located within the James River Summer and Winter Bald Eagle Concentration Zone. Significant habitat alteration, location of water-dependent facilities within concentration zones, or other recreational and commercial activities may result in adverse impacts upon eagles. Therefore, we recommend that the applicant ensure that this project is consistent with state and federal guidelines for protection of bald eagles; and that he coordinate as indicated with us or with the U.S. Fish and Wildlife Service regarding possible impacts upon bald eagles or the need for a federal bald eagle take permit.

This project is located within 2 miles of a documented occurrence of a state or federal threatened or endangered plant or insect species and/or other Natural Heritage coordination species. Therefore, we recommend coordination with VDCR-DNH regarding the protection of these resources.

We recommend adherence to erosion and sediment controls during dredging and placement of dredged materials.

Thanks, Amy

Amy Ewing @ Environmental Services Biologist/FWIS Manager @ VA Dept. of Game and Inland Fisheries @ 4010 West Broad St. Richmond, VA 23230 @ 804-367-2211 @ www.dgif.virginia.gov

[Outgoing Mail]



COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

1000 West Main Street, Suite 200
Richmond, Virginia 23210
(804) 786-6171

MEMORANDUM

DATE: May 20, 2014
TO: Charlie Ellis, DEQ
FROM: Roberta Rhur, Environmental Impact Review Coordinator
SUBJECT: DEQ 14-077E, Skiffes Creek Federal Navigation Channel Maintenance Dredging

Division of Natural Heritage

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

Biotics documents the presence of natural heritage resources in the project area. However, due to the scope of the activity and the distance to the resources, we do not anticipate that this project will adversely impact these natural heritage resources.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Gladys Cason (804-367-0909 or Gladys.Cason@dgif.virginia.gov). This project is located within 2 miles of a documented occurrence of a state listed animal. Therefore, DCR recommends coordination with

VDGIF, Virginia's regulatory authority for the management and protection of this species to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 - 570).

The remaining DCR divisions have no comments regarding the scope of this project. Thank you for the opportunity to comment.

CC: Amy Ewing, VDGIF



COMMONWEALTH of VIRGINIA

Department of Historic Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Molly Joseph Ward
Secretary of Natural Resources

Julie V. Langan
Director
Tel: (804) 367-2323
Fax: (804) 367-2391
www.dhr.virginia.gov

May 19, 2014

Mr. Charles H. Ellis III
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, Virginia 23219

RE: Skiffes Creek Federal Navigation Channel Maintenance Dredging
Project No. 14-077F
DHR File No. 2012-0961

Dear Mr. Ellis:

The Department of Historic Resources (DHR) has received an Environmental Impact Review Request for the project referenced above. Pursuant to Section 106 of the National Historic Preservation Act, DHR has been in direct consultation with the U.S. Department of the Air Force, Fort Eustis and its agents regarding this project and the parties have reached consensus that the Skiffes Creek Federal Navigation Channel Maintenance Dredging project will result in *no adverse effect* on historic properties. DHR has no further comment at this time.

Thank you for the opportunity to comment on this project. If you have any questions, please do not hesitate to contact me at gregory.labudde@dhr.virginia.gov.

Sincerely,

Greg LaBudde, Archaeologist
Review and Compliance Division

Administrative Services
10 Courthouse Ave.
Petersburg, VA 23803
Tel: (804) 862-6408
Fax: (804) 862-6186

Capital Region Office
2801 Kensington Avenue
Richmond, VA 23221
Tel: (804) 367-2323
Fax: (804) 367-2391

Tidewater Region Office
14415 Old Courthouse Way
2nd Floor
Newport News, VA 23608
Tel: (757) 886-3818
Fax: (757) 886-2808

Western Region Office
962 Kline Lane
Salem, VA 24153
Tel: (540) 387-5443
Fax: (540) 387-5446

Northern Region Office
5357 Main Street
PO Box 519
Stephens City, VA 22653
Tel: (540) 868-7029
Fax: (540) 868-7033



KENNETH WRIGHT CHAIRMAN • CLYDE HADJIAN, VICE-CHAIR • JAMES D. KICKOROUGH – TREASURER
DWIGHT L. FARMER, EXECUTIVE DIRECTOR/SECRETARY

MEMBER
JURISDICTIONS

May 28, 2014

CHESAPEAKE

Mr. Charles H. Ellis, III
Virginia Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, 6th Floor
Richmond, VA 23219

FRANKLIN

GLOUCESTER

HAMPTON

RE: DEQ#14-077F, Skiffes Creek Federal Navigation Channel,
Maintenance Dredging (ENV:GEN)

ISLE OF WIGHT

Dear Mr. Ellis,

JAMES CITY

Pursuant to your request, the staff of the Hampton Roads Planning District Commission has reviewed the Draft Supplemental Environmental Assessment and Consistency Determination for the following project, Skiffes Creek Federal Navigation Channel, Maintenance Dredging, in the City of Newport News. We have consulted with City staff regarding this project.

NEWPORT NEWS

NOFPOLE

Based on this review, the proposal appears to be consistent with local and regional plans and policies.

POQUOSON

PORTSMOUTH

We appreciate the opportunity to review this project. If you have any questions, please do not hesitate to call.

SOUTHAMPTON

Sincerely,

SUFFOLK

SURREY

Dwight L. Farmer
Executive Director/Secretary

VIRGINIA BEACH

BJM/jc

WILLIAMSBURG

Copy: Louis Bott, NN

YORK

From: Johnson, Mike (MRC)
Sent: Monday, May 12, 2014 11:00 AM
To: Ellis, Charles (DEQ)
Subject: FW: NEW PROJECT ARMY 14-077F

Good morning,

As this project involves the maintenance dredging of a Federal Navigation Channel by a Federal Agency a permit from the Virginia Marine Resources Commission will not be required. Please contact me if you have any other questions or concerns.

Mike Johnson
Habitat Management Division
VMRC
2600 Washington Ave.
Newport News, Va 23607
757-247-2255



DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
ENVIRONMENTAL IMPACT REVIEW COMMENTS

May 29, 2014

PROJECT NUMBER: 14-0771

PROJECT TITLE: Skiffes Creek Federal Navigation Channel Maintenance
Dredging

As requested, TRO staff has reviewed the supplied information and has the following comments:

Petroleum Storage Tank Cleanups:
No comments.

Petroleum Storage Tank Compliance/Inspections:
No comments.

Virginia Water Protection Permit Program (VWPP):
As described in the submitted information, specifically, correspondence from the U.S. Army Corps of Engineers (Corps) dated February 11, 2014, the project qualifies for a 13-RP-02 on which DEQ has provided § 401 Certification. Therefore, a Virginia Water Protection (VWP) permit will not be required by the DEQ for this project. If the project scope changes or if it is determined that the project no longer qualifies for a Nationwide or Regional Permit from the Corps, a permit or waiver from DEQ may be required.

Air Permit Program :
No Comments.

Water Permit Program :
Water Permits(VPDES/ VPA/ MS4) – no comments

Groundwater – no comments

Waste Permit Program :
No comment if the spoils are going to be disposed of at the NOD. However, if disposal is anticipated to be at a regional solid waste landfill further characterization in accordance with the Virginia Hazardous Waste Management Regulations and a special waste disposal waste request will be required.

The staff from the Tidewater Regional Office thanks you for the opportunity to provide comments.



DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
ENVIRONMENTAL IMPACT REVIEW COMMENTS

May 29, 2014

PROJECT NUMBER: 14-077F

PROJECT TITLE: Skiffes Creek Federal Navigation Channel Maintenance
Dredging

Sincerely,

Cindy Keltner
Environmental Specialist II
5636 Southern Blvd.
VA Beach, VA 23462
(757) 518-2167
Cindy.Keltner@deq.virginia.gov

APPENDIX E
CONSULTATION LETTERS

SHPO



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS, 733D MISSION SUPPORT GROUP
JOINT BASE LANGLEY-EUSTIS
FORT EUSTIS, VIRGINIA

Civil Engineering Division

JUN 19 2012

Mr. Marc Holma
Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

Dear Mr. Holma

The US Air Force proposes to dredge a section of Skiffes Creek that leads into the Third Port facility at Fort Eustis, Virginia. Skiffes Creek is located in the City of Newport News, Virginia. The creek is approximately 4 miles long, and has a surface area of 137 acres. Skiffes Creek is a tidal stream which empties into the east side of the James River, 18 miles above its mouth. It is a navigational channel that serves as the entrance to Third Port. The Third Port is located in the northwest corner of Ft Eustis. The project consists of maintenance dredging of the Skiffes Creek channel over 15 years. Each dredging cycle may involve up to 500,000 cubic yards of material per cycle. Dredged material will be pumped by hydraulic pipeline directly to the upland confined placement facility, Fort Eustis Dredged Material Management Area (FEDMMA). Fort Eustis proposes to dredge 500,000 cubic yards of material from this channel. The following depths include 2 feet of paid allowable overdepth and 1 foot of nonpaid overdepth dredging: A. 7,800 ft long area, -23 feet MLLW, B. 690 ft long area, -20 ft MLLW, C. 715 ft long area, -14 MLLW.

There are no known historic properties in the projects Area of Potential Effect. Since this project is taking place in a previously dredged location, in accordance with paragraph 3 (b) (1) of Appendix C to 33 CFR 325 the Air Force is "presuming that any historic properties that may have at one time existed within the permit area have been lost."

The US Air Force has therefore determined that there are no historic properties in the area of potential effects for these undertakings. Therefore, the Air Force has determined that no further work is required in order for this project to proceed in compliance with the National Historic Preservation Act of 1966, as amended. We request that you review this determination and forward your comments within 30 days. If you do not comment within 30 days, we will assume you agree with the Air Force's determination of no historic properties adversely affected by this undertaking and will proceed without taking further steps in the Section 106 process.

If you have any questions, please contact Christopher L. McDaid at (757) 878-4123 ext 295 or email christopher.mcdaid@us.army.mil.

Sincerely,

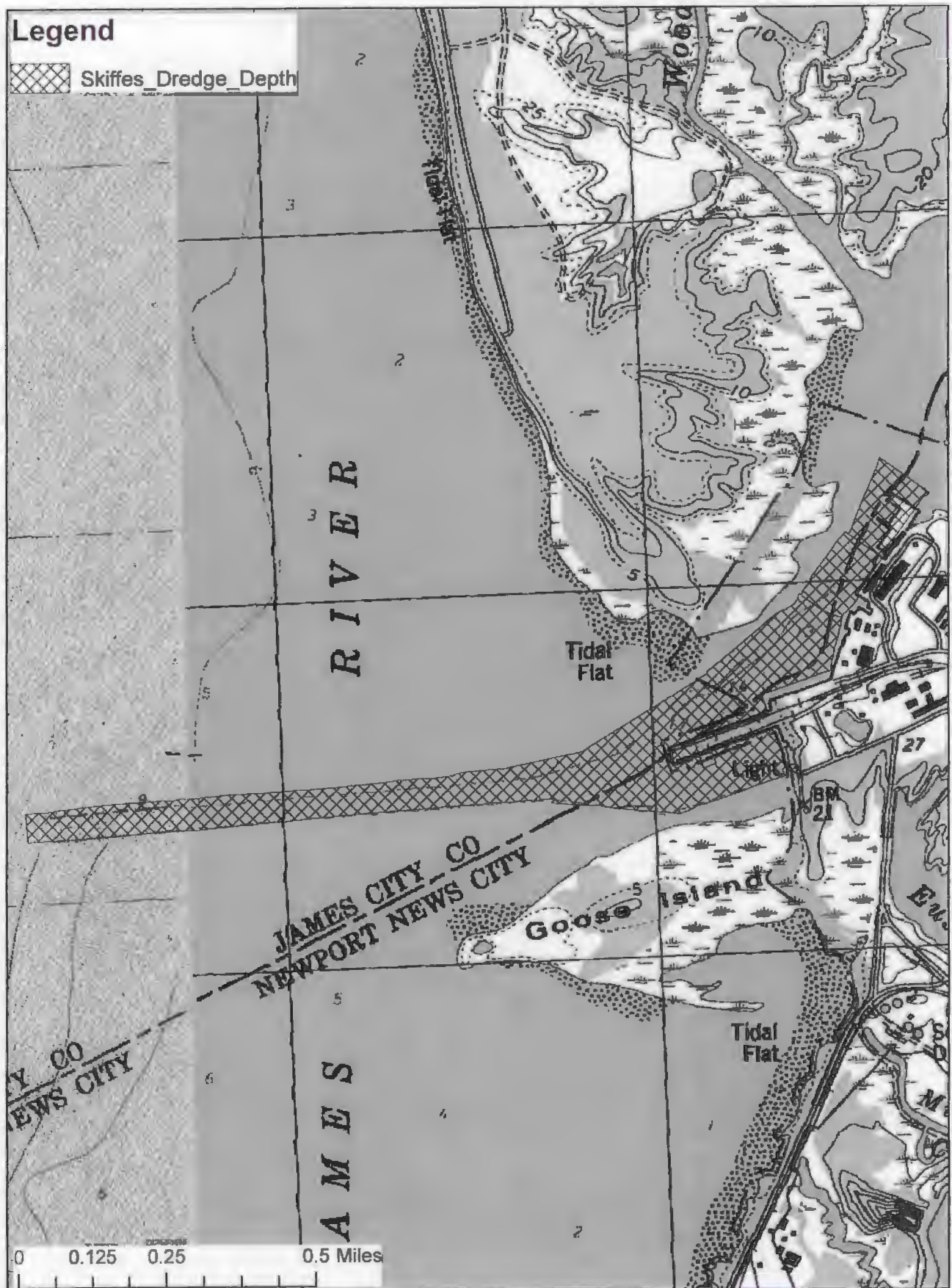
A handwritten signature in black ink that reads "Susan P. Miller".

Susan P. Miller
Chief, Environmental Element

Enclosure

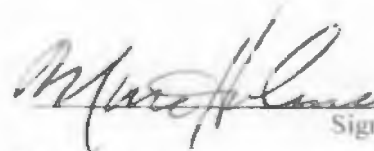
Legend

 Skiffes Dredge Depth



The VDHR concurs with the Air Force's determination of no adverse effect by the following undertaking.

Project Reference: FE 2012.014: Dredging of Skiffes Creek

 26 June 12
Signature Date

DIR# 2012-0961

ESSENTIAL FISH HABITAT (EFH)

Nadal, Teresita I NAO

From: Nadal, Teresita I NAO
Sent: Tuesday, February 04, 2014 2:10 PM
To: 'David.L.O'Brien@noaa.gov'
Subject: Skiffes Creek EFH assessment (UNCLASSIFIED)
Attachments: Skiffes_Creek.pdf

Classification: UNCLASSIFIED
Caveats: NONE

Dave,

Attached is an EFH assessment for Skiffes Creek.

Please let me know if you have questions.

Thank you.

Teri

Teri Nadal
Ops Branch, Technical Support Section
U.S. Army Corps of Engineers
Norfolk District
(757) 201-7299

Classification: UNCLASSIFIED
Caveats: NONE

EFH ASSESSMENT WORKSHEET FOR FEDERAL AGENCIES

PROJECT NAME: Skiffes Creek Federal Navigation Channel

DATE: February 4, 2014

PROJECT NO.: Permit #

LOCATION: Newport News, VA

PREPARER: Teri Nadal

Step 1. Use the Habitat Conservation Division EFH webpage, Guide to Essential Fish Habitat Designations in the Northeastern United States to generate the list of designated EFH for federally-managed species for the geographic area of interest (<http://www.nero.noaa.gov/hcd/index2a.htm>). Use the species list as part of the initial screening process to determine if EFH for those species occurs in the vicinity of the proposed action. Attach that list to the worksheet because it will be used in later steps. Make a preliminary determination on the need to conduct an EFH Consultation.

1. INITIAL CONSIDERATIONS		
EFH Designations	Yes	No
Is the action located in or adjacent to EFH designated for eggs?	X	
Is the action located in or adjacent to EFH designated for larvae?	X	
Is the action located in or adjacent to EFH designated for juveniles?	X	
Is the action located in or adjacent to EFH designated for adults?	X	
Is the action located in or adjacent to EFH designated for spawning adults?		X
If you answered no to all questions above, then EFH consultation is not required -go to Section 5. If you answered yes to any of the above questions proceed to Section 2 and complete remainder of the worksheet.		

Step 2. In order to assess impacts, it is critical to know the habitat characteristics of the site before the activity is undertaken. Use existing information, to the extent possible, in answering these questions. Please note that, there may be circumstances in which new information must be collected to appropriately characterize the site and assess impacts.

2. SITE CHARACTERISTICS	
Site Characteristics	Description
Is the site intertidal, sub-tidal, or water column?	The dredging area site is tidal.
What are the sediment characteristics?	The dredged material consists of 25% sand, 60% silt and 15% clay.
Is Habitat Area of Particular Concern (HAPC) designated at or near the site? If so what type, size, characteristics?	Shallow areas have been identified as HAPC for sandbar shark nursery and pupping grounds. There are no shallow areas within the project area.
Is there submerged aquatic vegetation (SAV) at or adjacent to project site? If so describe the spatial extent.	There is no SAV at or adjacent to the project site. Determined using VIMS website. Attachment D.
What is typical salinity and temperature regime/range?	The average range in salinity is 3 to 15 ppt. The average range in temperature is 37° to 88° F.
What is the normal frequency of site disturbance, both natural and man-made?	This site is used year round. The facility provides a safe harbor for the 7th Group's watercraft fleet and serves as a deployment platform for Army units. In addition, it is a joint service training facility for watercraft operators and cargo handlers. Commercial vessels access two industrial complexes located upstream of Skiffes Creek. Recreational vessels also transit the channel. Dredging is usually performed every 7 years.
What is the area of proposed impact (work footprint & far afield)?	<p>The Skiffes Creek channel dimensions consist of:</p> <ul style="list-style-type: none"> a. One 7,800 foot long area, -23 feet below mean lower low water (station 0+00 - 77+64.16) variable in width. b. One 690 foot long area, -20 feet below mean lower low water (station 77+64.16 - 83+52.69) variable in width. c. One 715 foot long area, -14 feet below mean lower low water (station 83+52.69 - 90+67.69) variable in width. <p>As an interim dredging cycle, up to 250,000 CYs will be dredged with placement at the Norfolk Ocean Disposal Site (NODS). The long term plan is to place 500,000 CYs of dredged material per cycle at the upland confined placement, the Fort Eustis Dredged Material Management Area (FEDMMA) once it is restored.</p>

Step 3. This section is used to describe the anticipated impacts from the proposed action on the physical/chemical/biological environment at the project site and areas adjacent to the site that may be affected.

3. DESCRIPTION OF IMPACTS			
Impacts	Y	N	Description
Nature and duration of activity(s)			An interim dredging will be performed using a mechanical dredge and transported by bottom dump scow to the NODS. The anticipated duration of mechanical dredging is approximately 120 days. The long term plan for maintenance dredging is to use a hydraulic dredge with material placement at an upland confined placement facility (FEDMMA) once it is restored. The dredged material will be transported by pipeline to the FEDMMA. The anticipated duration of hydraulic dredging is approximately 90 days.
Will benthic community be disturbed?	x		Dredging will permanently impact non-motile benthic organisms within the dredging area through direct removal of substrate in the channel prism. Once dredging is complete, benthic organisms should begin to repopulate quickly.
Will SAV be impacted?		x	There is no SAV (identified through the VIMS website).
Will sediments be altered and/or sedimentation rates change?	x		Post dredge substrate characteristics will be the same as shoaled sediments removed by dredging. Short-term impacts will occur during dredging operations. There will be minor impacts to sedimentation rates in the dredging area.
Will turbidity increase?	x		Turbidity will temporarily increase at the dredging location and the overboard placement site (NODS) due to the physical characteristics of the sediment.
Will water depth change?	x		Yes
Will contaminants be released into sediments or water column?		x	Dredged material from Skiffes Creek Channel has been evaluated in accordance with the Federal regulations and complies with the Marine Protection, Research, and Sanctuaries Act (MPRSA) and CWA requirements.
Will tidal flow, currents or wave patterns be altered?		x	There will be a no significant change in tidal flow, currents, or wave patterns.
Will ambient salinity or temperature regime change?		x	The ambient salinity and temperature regime should not change as a result of the dredging or placement operations.
Will water quality be altered?	x		Short-term and isolated impacts to dissolved oxygen may occur through increased turbidity. Impacts should be temporary.

Step 4. This section is used to evaluate the consequences of the proposed action on the functions and values of EFH as well as the vulnerability of the EFH species and their life stages. Identify which species from the EFH species list (generated in Step 1) will be adversely impacted from the action. Assessment of EFH impacts should be based upon the site characteristics identified in Step 2 and the nature of the impacts described within Step 3. The Guide to EFH Descriptions webpage (<http://www.nero.noaa.gov/hcd/list.htm>) should be used during this assessment to determine the ecological parameters/preferences associated with each species listed and the potential impact to those parameters.

4. EFH ASSESSMENT			
Functions and Values	Y	N	Describe habitat type, species and life stages to be adversely impacted
Will functions and values of EFH be impacted for:			
Spawning		x	
Nursery	x		Demersal waters serve as nursery areas for juvenile and adult windowpane and summer flounder. Shallow areas of have been identified has HAPC for sandbar shark nursery and pupping grounds. There will be temporary impacts during dredging operations. However, these species are expected to relocate during operations and return upon completion of the work.
Forage	x		Juvenile and adult windowpane and summer flounder are benthic feeders. These species are motile benthic feeders and are expected to relocate during operations and return upon completion of the work.
Shelter		x	Shallow areas of have been identified as HAPC for sandbar shark nursery and pupping grounds. However, these species are expected to relocate during operations and return upon completion of the work.
Will impacts be temporary or permanent?			Impacts are anticipated to be temporary. Species that may be present in the project area are expected to relocate during the dredging activity and return once the work is complete.
Will compensatory mitigation be used?		x	n/a

Step 5. This section provides the Federal agency's determination on the degree of impact to EFH from the proposed action. The EFH determination also dictates the type of EFH consultation that will be required with NOAA Fisheries.

5. DETERMINATION OF IMPACT		
		Federal Agency's EFH Determination
Overall degree of adverse effects on EFH (not including compensatory mitigation) will be: (check the appropriate statement)		There is no adverse effect on EFH EFH Consultation is not required
	X	The adverse effect on EFH is not substantial. This is a request for an abbreviated EFH consultation. This worksheet is being submitted to NMFS to satisfy the EFH Assessment requirement.
		The adverse effect on EFH is substantial. This is a request for an expanded EFH consultation. A detailed written EFH assessment will be submitted to NMFS expanding upon the impacts revealed in this worksheet.

Step 6. Consultation with NOAA Fisheries may also be required if the proposed action results in adverse impacts to other NOAA-trust resources, such as anadromous fish, shellfish, crustaceans, or their habitats. Some examples of other NOAA-trust resources are listed below. Inquiries regarding potential impacts to marine mammals or threatened/endangered species should be directed to NOAA Fisheries' Protected Resources Division.

6. OTHER NOAA-TRUST RESOURCES IMPACT ASSESSMENT	
Species known to occur at site (list others that may apply)	Describe habitat impact type (i.e., physical, chemical, or biological disruption of spawning and/or egg development habitat, juvenile nursery and/or adult feeding or migration habitat).
alewife	
blueback herring	
rainbow smelt	
Atlantic sturgeon	
Atlantic menhaden	
American shad	
American eel	
American lobster	
blue mussels	
soft-shell clams	
quahog	
Other species:	
Anadromous fish	

Skiffes Creek is located in Fort Eustis, Newport News, Virginia. The creek is approximately 4 miles long, and has a surface area of 137 acres. Skiffes Creek is a tidal creek which empties into the east side of the James River, 18 miles above its mouth. It is a navigational channel that serves as the entrance to Third Port. The Third Port is located in the northwest corner of Fort Eustis. The Third Port is a deepwater port used to train personnel in cargo logistics and vessel operations. The facility provides a safe harbor for the 7th Group's watercraft fleet and serves as a deployment platform for Army units. In addition, it is a joint service training facility for watercraft operators and cargo handlers. Commercial vessels and recreational vessels also transit Skiffes Creek. The purpose of this project is to provide safe navigation to Army vessels.

Sedimentation has reduced the operating depth of Skiffes Creek channel from authorized dimensions. Current soundings in Skiffes Creek indicate the channel leading to the Third Port and its main pier has shoaled in some locations. Vessels are subject to running aground, hampering navigation. With the current shallow depths, these vessels are drawing silt and muck into these systems resulting in increased maintenance, repairs and downtime for the larger vessels. Because of the shoaling the existing channel width will not allow large vessels to enter and exit the channel simultaneously, thus increasing the time associated with contingency deployments. Maintenance dredging is necessary to accommodate the deeper draft vessels during all tidal stages. Fort Eustis has a transportation training function which would be adversely affected if dredging is not performed. The larger vessels that are assigned to the post need full project dimensions to safely navigate during all tidal stages between the James River and Third Port.

Previous maintenance dredging was completed in 2004. The average dredging frequency has been approximately every 7 years. Maintenance dredging of Skiffes Creek project will be conducted during a fifteen-year period. An interim dredging cycle is required and will be performed by mechanical dredge removing up to 250,000 cubic yards (CY) of dredged material and transported by bottom dump scow to the overboard placement at the Norfolk Ocean Disposal Site (NODS). Dredging is expected to be completed within 120 days. The long term goal is to conduct dredging by hydraulic dredge to the maximum permitted depth removing approximately 500,000 CYs of material each dredging cycle with upland confined placement at the previously used Fort Eustis Dredged Material Management Area (FEDMMA) once it is restored. An approximate total of 1,500,000 CY will be dredged over a fifteen-year period and placed at FEDMMA.

The following depths include 2 feet of paid allowable advance maintenance overdepth and 1 foot of nonpaid overdepth dredging:

- a. One 7,800 foot long area, -23 feet below mean lower low water (station 0+00 - 77+64.16) variable in width.
- b. One 690 foot long area, -20 feet below mean lower low water (station 77+64.16 - 83+52.69) variable in width.
- c. One 715 foot long area, -14 feet below mean lower low water (station 83+52.69 - 90+67.69) variable in width.

An interim dredging cycle will be performed with overboard placement at the NODS. The NODS was designated by the Environmental Protection Agency (EPA) pursuant to Section 102(c) of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended, as suitable for ocean disposal of dredged material on July 2, 1993 (FR. Vol. 5a No. 126). The NODS is located in the Atlantic Ocean approximately 17 miles east of Cape Henry and is approximately 50 square nautical miles in size. The site is circular with a radius of 4 nautical miles and the water depth ranges from 43 to 85 feet. The NODS has unlimited capacity and was designated for use as a placement site for suitable materials from the Skiffes Creek Channel. The NODS is located in the Atlantic Ocean approximately 17 miles east of Cape Henry and approximately 2 statute miles north/northwest of The Chesapeake Light Tower. The NODS is approximately 50 square nautical miles in size with a circular radius of 4 nautical miles and water depths ranging from 43 to 85 feet. The center point coordinate of the site is north latitude 36° 59' and west longitude 75° 39'.

The long term plan is to pump by hydraulic pipeline the dredged material directly to the upland confined placement facility FEDMMA once it is restored. The FEDMMA is an 80 acre facility located on the western portion of Fort Eustis, south of the Third Port facility. The dredged material placed in the upland site will undergo sedimentation processes. Coarse grained materials will settle out immediately at the dredged material inflow point and fine sediments will settle out in the ponded area within the upland site.

Dredged material from Skiffes Creek Channel has been evaluated in accordance with the Marine Protection, Research, and Sanctuaries Act (MPRSA). Ocean placement of dredged material is regulated under Section 103 of the MPRSA of 1972 (Public Law 92-532). This law states that any proposed placement of dredged material into ocean waters must be evaluated through the use of criteria published by the U.S. Environmental Protection Agency (USEPA) in Title 40 of the Code of Federal Regulations, Parts 220-228 (40 CFR 220-228). The primary purpose of Section 103 of the MPRSA is to limit and regulate adverse environmental impacts of ocean placement of dredged material. Dredged material proposed for ocean placement must comply with 40 CFR 220-228 (Ocean Dumping Regulations) and 33 CFR 320-330 and 335-338 (USACE Regulations for Discharge of Dredged Materials into Waters in U.S. or Ocean Water) prior to being issued an ocean placement permit. The technical evaluation of potential contaminant-related impacts that may be associated with ocean placement of dredged material is conducted in accordance with 40 CFR 220-228 and the *Ocean Testing Manual* (USEPA/USACE 1991). The criteria defined in 40 CFR Part 227 are used to determine compliance. The dredged material is 25% sand, 60% silt and 15% clay.

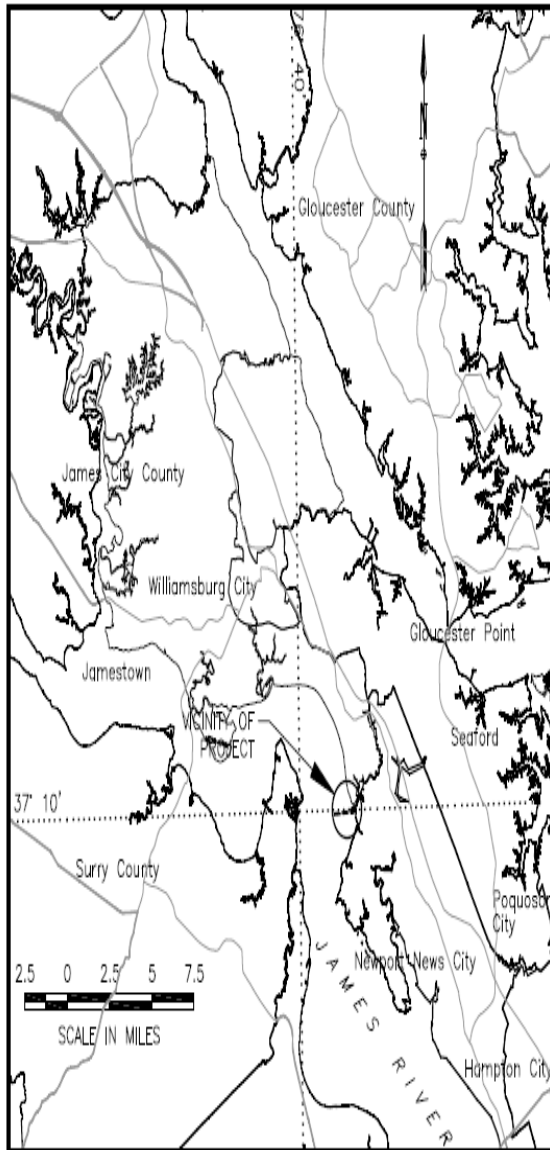
The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996, requires all Federal agencies to consult with the National Marine Fisheries Service (NMFS) on all actions, or proposed actions, permitted, funded, or undertaken by the agency that may adversely affect Essential Fish Habitat (EFH). Congress defines EFH as, "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) governs the EFH and requires the identification of EFH for managed species as well as measures to conserve and enhance the habitat necessary for fish to carry out their life cycles. The NMFS oversees the EFH designations, and gives guidance to minimize harm to EFH. Habitat Areas of Particular Concern (HAPC) are subsets of EFH and are given special consideration to adverse impacts.

The Skiffes Creek Federal Navigation Channel lies adjacent to EFH for several species including: juvenile and adult Atlantic butterfish (*Peprilus triacanthus*); juvenile and adult black sea bass (*Centropristis striata*); juvenile and adult bluefish (*Pomatomus saltatrix*); eggs, larvae, juvenile, and adult stages of cobia (*Rachycentron canadum*); dusky shark larvae (*Charcharinus obscurus*); eggs, larvae, juvenile, and adult king mackerel (*Scomberomorus cavalla*); eggs, larvae, juvenile, and adult red drum (*Sciaenops ocellatus*); larvae and adult sandbar shark (*Charcharinus plumbeus*); eggs, larvae, juvenile, and adult Spanish mackerel (*Scomberomorus maculatus*); larvae, juvenile and adult summer flounder (*Paralichthys dentatus*); juvenile and adult windowpane flounder (*Scopthalmus aquosus*). In addition to these EFH designations, the area has been designated as a HAPC for larvae, juvenile and adult life cycles of the sandbar shark.

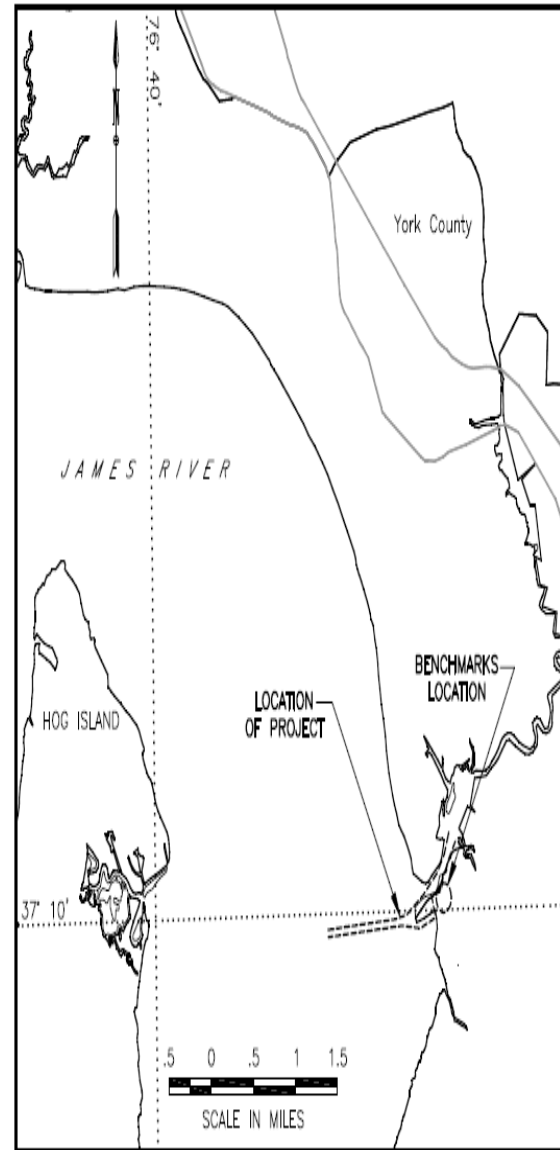
The NODS lies adjacent to EFH for several species that are identified within four quadrants (Attachment F). The NODS was designated by the Environmental Protection Agency (EPA) pursuant to Section 102(c) of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended, as suitable for ocean disposal of dredged material on July 2, 1993 (FR. Vol. 5a No. 126). Since then, the NODS is used by several projects for dredged material placement. Any fish within the NODS would relocate and return once work is complete.

Maintenance dredging and material placement site impacts to fish will be temporary. Any fish within area would relocate and return once work is complete. This project does not have the potential to substantially adversely affect EFH for the species of concern by loss of forage and/or shelter habitat.

ATTACHMENT A: Project Vicinity and Location Map

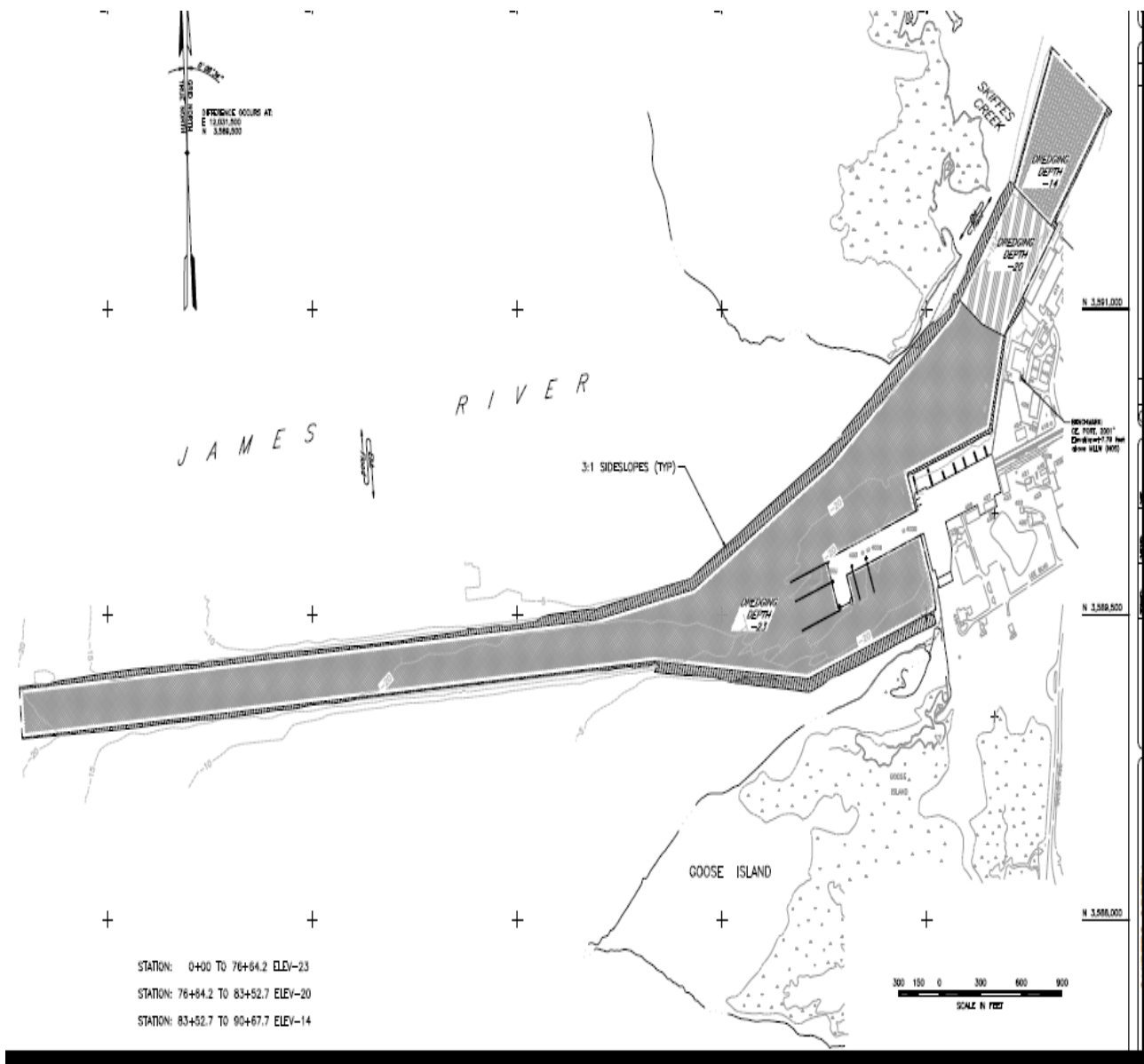


VICINITY MAP

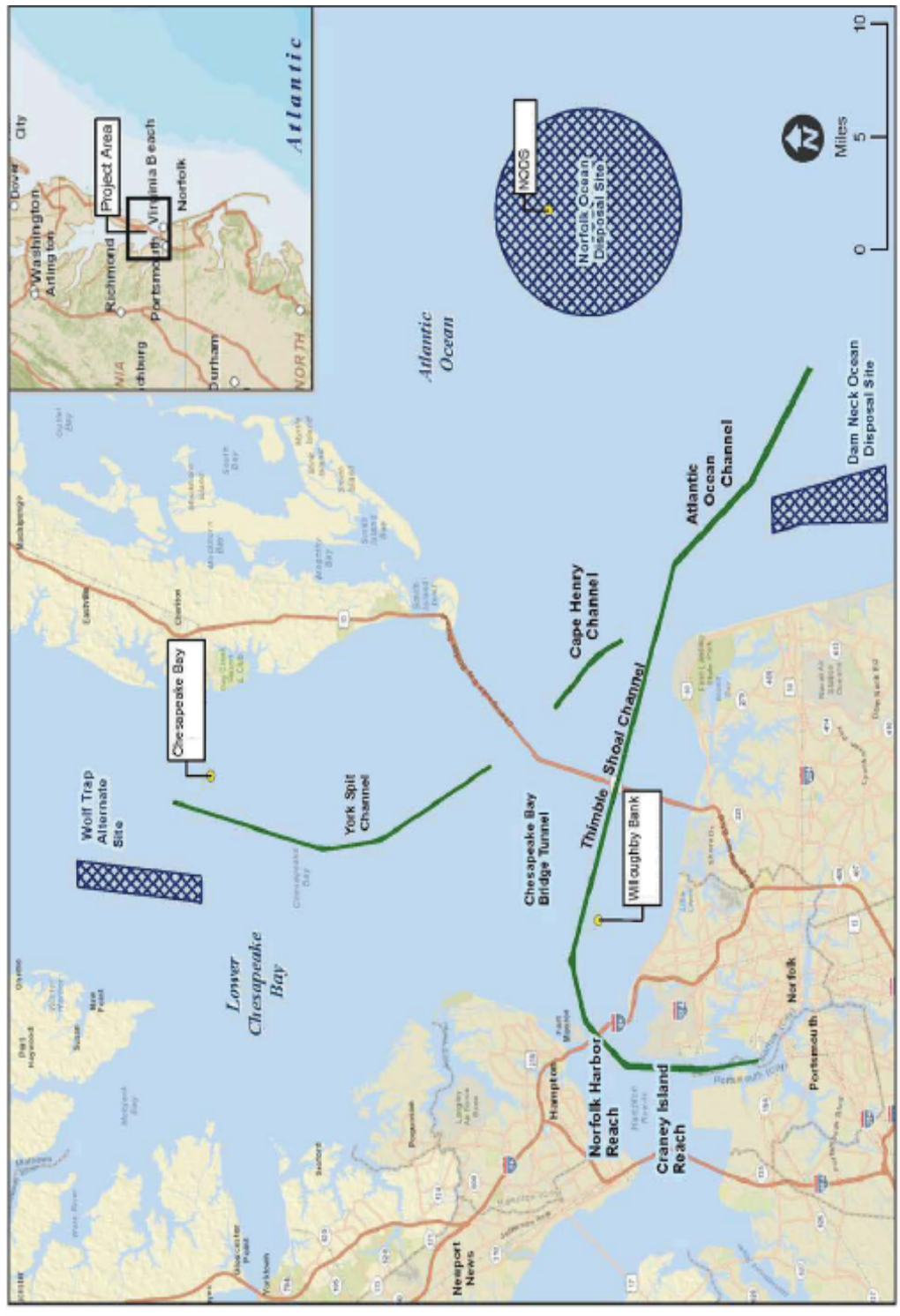


LOCATION MAP

ATTACHMENT B: Project Map

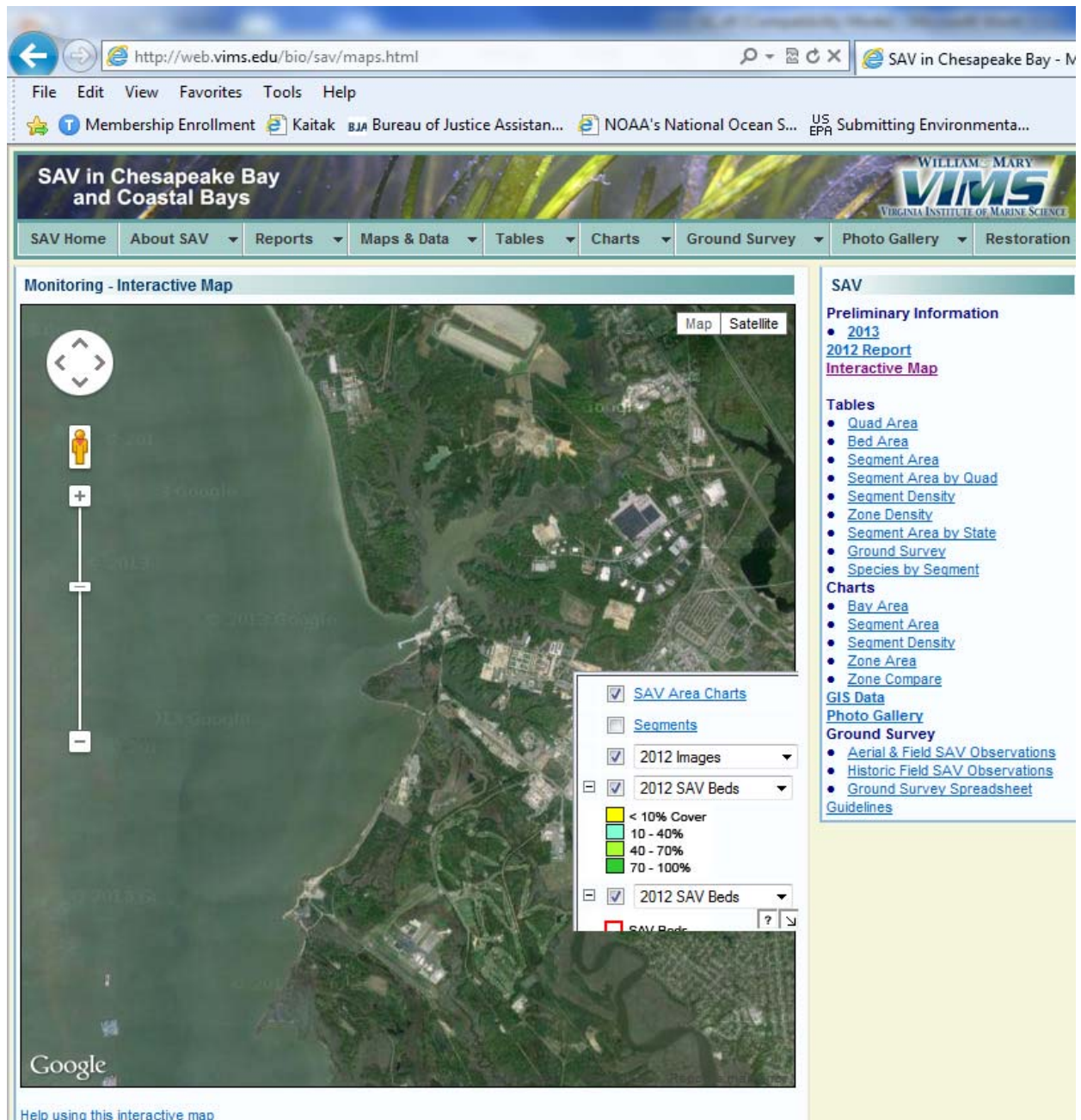


ATTACHMENT C: Norfolk Ocean Disposal Site Map



ATTACHMENT D: SAV Map

Accessed January 16, 2014 <http://web.vims.edu/bio/sav/maps.html>



ATTACHMENT E: Skiffes Creek Summary of EFH Designations

Accessed January 16, 2014 <http://www.nero.noaa.gov/hcd/STATES4/virginia/virginia/>

Summary of Essential Fish Habitat (EFH) Designations

10 x 10 Square Coordinates:

Boundary	North	East	South	West
Coordinate	37 10.0 N	76 30.0 W	37 00.0 N	76 40.0 W

Square Description (i.e. habitat, landmarks, coastline markers): James River waters within the square affecting the following: Warwick River, Deep Creek, Burwell Bay, Point of Shoals, Rocklanding Shoal Channel, White Shoal, Rainbow Farm Pt., Pagan River Inlet, Blunt Pt., Menchville, VA., Jail Pt., Jail Creek, Mulberry I., Swash Hole, Swash Hole Islands, Mulberry Pt., Crisholm Creek, eastern Lawnes Neck, and Deep Waters Shoals.

Skiffes Creek

Species	Eggs	Larvae	Juveniles	Adults
Atlantic butterfish (<i>Peprilus triacanthus</i>)			X	X
black sea bass (<i>Centropristis striata</i>)	n/a		X	X
bluefish (<i>Pomatomus saltatrix</i>)			X	X
cobia (<i>Rachycentron canadum</i>)	X	X	X	X
dusky shark (<i>Carcharhinus obscurus</i>)		X		
king mackerel (<i>Scomberomorus cavalla</i>)	X	X	X	X
red drum (<i>Sciaenops ocellatus</i>)	X	X	X	X
sandbar shark (<i>Carcharhinus plumbeus</i>)		X		X
sandbar shark (<i>Carcharhinus plumbeus</i>)		HAPC	HAPC	HAPC
Spanish mackerel (<i>Scomberomorus maculatus</i>)	X	X	X	X
summer flounder (<i>Paralichthys dentatus</i>)		X	X	X
windowpane flounder (<i>Scophthalmus aquosus</i>)			X	X

ATTACHMENT F: NODS Summary of EFH Designations

Summary of Essential Fish Habitat (EFH) Designations

10 x 10 Square Coordinates:

Boundary	North	East	South	West
Coordinate	37 10.0 N	75 40.0 W	37 00.0 N	75 50.0 W

Square Description (i.e. habitat, landmarks, coastline markers): Waters within the Atlantic Ocean within the square one square east of the square affecting Cape Charles, Fishermans I., and most of Smith I. There is also a large dumpsite area that is affected by the waters within this square. It is the northwestern quarter of the dumpsite.

NODS Northwest Quarter

Species	Eggs	Larvae	Juveniles	Adults
Atl. sharpnose shark (<i>Rhizopriondon terraenovae</i>)				X
Atlantic sea herring (<i>Clupea harengus</i>)				X
black sea bass (<i>Centropristis striata</i>)	n/a		X	X
bluefish (<i>Pomatomus saltatrix</i>)			X	X
cobia (<i>Rachycentron canadum</i>)	X	X	X	X
dusky shark (<i>Carcharhinus obscurus</i>)		X	X	
king mackerel (<i>Scomberomorus cavalla</i>)	X	X	X	X
monkfish (<i>Lophius americanus</i>)	X	X		
red drum (<i>Sciaenops ocellatus</i>)	X	X	X	X
sand tiger shark (<i>Carcharias taurus</i>)		X		X
sandbar shark (<i>Carcharhinus plumbeus</i>)		X	X	X
scalloped hammerhead shark (<i>Sphyrna lewini</i>)			X	
scup (<i>Stenotomus chrysops</i>)	n/a	n/a	X	X
Spanish mackerel (<i>Scomberomorus maculatus</i>)	X	X	X	X
spiny dogfish (<i>Squalus acanthias</i>)	n/a	n/a	X	X
summer flounder (<i>Paralichthys dentatus</i>)	X		X	X
tiger shark (<i>Galeocerdo cuvieri</i>)		X	X	X
windowpane flounder (<i>Scophthalmus aquosus</i>)	X	X	X	X
witch flounder (<i>Glyptocephalus cynoglossus</i>)	X			

Summary of Essential Fish Habitat (EFH) Designations

10 x 10 Square Coordinates:

Boundary	North	East	South	West
Coordinate	37 10.0 N	75 30.0 W	37 00.0 N	75 40.0 W

Square Description (i.e. habitat, landmarks, coastline markers): Waters within the Atlantic Ocean within the square two squares east of the square affecting Cape Charles, Fishermans I., and most of Smith I., in Virginia. There is also a large dumpsite area that is affected by the waters within this square. It is the northeastern quarter of the dumpsite.

NODS Northeast Quarter

Species	Eggs	Larvae	Juveniles	Adults
Atl. sharpnose shark (<i>Rhizopriondon terraenovae</i>)				X
black sea bass (<i>Centropristis striata</i>)	n/a		X	X
bluefish (<i>Pomatomus saltatrix</i>)		X	X	X
cobia (<i>Rachycentron canadum</i>)	X	X	X	X
dusky shark (<i>Carcharhinus obscurus</i>)		X	X	
king mackerel (<i>Scomberomorus cavalla</i>)	X	X	X	X
monkfish (<i>Lophius americanus</i>)	X	X		
red drum (<i>Sciaenops ocellatus</i>)	X	X	X	X
red hake (<i>Urophycis chuss</i>)	X	X	X	
sand tiger shark (<i>Carcharias taurus</i>)		X		X
sandbar shark (<i>Carcharhinus plumbeus</i>)		X	X	X
scalloped hammerhead shark (<i>Sphyrna lewini</i>)			X	
scup (<i>Stenotomus chrysops</i>)	n/a	n/a	X	X
Spanish mackerel (<i>Scomberomorus maculatus</i>)	X	X	X	X
spiny dogfish (<i>Squalus acanthias</i>)	n/a	n/a	X	X
summer flounder (<i>Paralichthys dentatus</i>)			X	X
surf clam (<i>Spisula solidissima</i>)	n/a	n/a	X	X
tiger shark (<i>Galeocerdo cuvieri</i>)		X	X	X
windowpane flounder (<i>Scophthalmus aquosus</i>)		X	X	X
witch flounder (<i>Glyptocephalus cynoglossus</i>)		X		

Summary of Essential Fish Habitat (EFH) Designations

10 x 10 Square Coordinates:

Boundary	North	East	South	West
Coordinate	37 00.0 N	75 40.0 W	36 50.0 N	75 50.0 W

Square Description (i.e. habitat, landmarks, coastline markers): Waters within the Atlantic Ocean within the square one square east of the square affecting from Cape Henry on the south, to just north of Rudee Inlet at Virginia Beach, VA. There is also a large dumpsite area that is affected by the waters within this square. It is the southwestern quarter of the dumpsite. There is also a buoy testing area just north of the Chesapeake Horn.

NODS Southwest Quarter

Species	Eggs	Larvae	Juveniles	Adults
Atl. sharpnose shark (<i>Rhizopriondon terraenovae</i>)				X
Atlantic butterfish (<i>Peprilus triacanthus</i>)	X			
Atlantic sea herring (<i>Clupea harengus</i>)				X
black sea bass (<i>Centropristis striata</i>)	n/a	X	X	X
bluefish (<i>Pomatomus saltatrix</i>)			X	
cobia (<i>Rachycentron canadum</i>)	X	X	X	X
dusky shark (<i>Carcharhinus obscurus</i>)		X	X	
king mackerel (<i>Scomberomorus cavalla</i>)	X	X	X	X
long finned squid (<i>Loligo pealeii</i>)	n/a	n/a	X	
monkfish (<i>Lophius americanus</i>)	X	X		
red drum (<i>Sciaenops ocellatus</i>)	X	X	X	X
sand tiger shark (<i>Carcharias taurus</i>)		X		X
sandbar shark (<i>Carcharhinus plumbeus</i>)		X	X	X
scalloped hammerhead shark (<i>Sphyrna lewini</i>)			X	
scup (<i>Stenotomus chrysops</i>)	n/a	n/a	X	X
Spanish mackerel (<i>Scomberomorus maculatus</i>)	X	X	X	X
spiny dogfish (<i>Squalus acanthias</i>)	n/a	n/a	X	X
summer flounder (<i>Paralichthys dentatus</i>)	X		X	X
surf clam (<i>Spisula solidissima</i>)	n/a	n/a	X	
tiger shark (<i>Galeocerdo cuvieri</i>)		X	X	X
windowpane flounder (<i>Scophthalmus aquosus</i>)	X	X	X	X
witch flounder (<i>Glyptocephalus cynoglossus</i>)	X			

Summary of Essential Fish Habitat (EFH) Designations

10 x 10 Square Coordinates:

Boundary	North	East	South	West
Coordinate	37 00.0 N	75 30.0 W	36 50.0 N	75 40.0 W

Square Description (i.e. habitat, landmarks, coastline markers): Waters within the Atlantic Ocean within the square two squares east of the square affecting from Cape Henry on the south, to just north of Rudee Inlet at Virginia Beach, VA. There is also a large dumpsite area that is affected by the waters within this square. It is the southeastern quarter of the dumpsite.

NODS Southeast Quarter

Species	Eggs	Larvae	Juveniles	Adults
Atl. sharpnose shark (<i>Rhizopriondon terraenovae</i>)				X
Atlantic butterfish (<i>Peprilus triacanthus</i>)			X	X
Atlantic sea herring (<i>Clupea harengus</i>)				X
black sea bass (<i>Centropristis striata</i>)	n/a	X	X	X
bluefish (<i>Pomatomus saltatrix</i>)	X	X	X	X
cobia (<i>Rachycentron canadum</i>)	X	X	X	X
dusky shark (<i>Carcharhinus obscurus</i>)		X	X	
king mackerel (<i>Scomberomorus cavalla</i>)	X	X	X	X
monkfish (<i>Lophius americanus</i>)	X	X		
ocean quahog (<i>Artica islandica</i>)	n/a	n/a		
red drum (<i>Sciaenops ocellatus</i>)	X	X	X	X
sand tiger shark (<i>Carcharias taurus</i>)		X		X
sandbar shark (<i>Carcharhinus plumbeus</i>)		X	X	X
scallop hammerhead shark (<i>Sphyrna lewini</i>)			X	
scup (<i>Stenotomus chrysops</i>)	n/a	n/a	X	X
Spanish mackerel (<i>Scomberomorus maculatus</i>)	X	X	X	X
spiny dogfish (<i>Squalus acanthias</i>)	n/a	n/a	X	X
summer flounder (<i>Paralichthys dentatus</i>)	X	X	X	X
surf clam (<i>Spisula solidissima</i>)	n/a	n/a	X	
tiger shark (<i>Galeocerdo cuvieri</i>)		X	X	X
whiting (<i>Merluccius bilinearis</i>)	X	X	X	
windowpane flounder (<i>Scophthalmus aquosus</i>)	X	X		
witch flounder (<i>Glyptocephalus cynoglossus</i>)	X			

From: [Nadal, Teresita I NAO](#)
To: [Lockwood, Keith B NAO](#); [Jones, Jonathan A NAO](#); [Powell, Stephen J NAO](#); [Turner, Chris W NAO](#); [Pruhs, Robert S NAO](#)
Subject: FW: [EXTERNAL] Skiffes Creek Federal Navigation Channel (UNCLASSIFIED)
Date: Monday, June 02, 2014 1:32:46 PM

Classification: UNCLASSIFIED
Caveats: NONE

FYI.
TOYR

Teri Nadal
Ops Branch, Technical Support Section
U.S. Army Corps of Engineers
Norfolk District
(757) 201-7299

-----Original Message-----

From: David O'Brien - NOAA Federal [<mailto:david.l.o'brien@noaa.gov>]
Sent: Monday, June 02, 2014 1:27 PM
To: Evans, John D NAO
Cc: Nadal, Teresita I NAO; Owen, Randy; Christine Vaccaro
Subject: [EXTERNAL] Skiffes Creek Federal Navigation Channel

Hello John,

I have reviewed the coordination materials you sent along with the Draft Supplemental Environmental Assessment and an essential fish habitat (EFH) assessment prepared by Teri Nadal, NAO Operations Branch regarding the proposed maintenance dredging of Skiffes Creek Federal Navigation Channel on the James River, Virginia. As you know, the Skiffes Creek project channel provides access to the Third Port facility at Joint Base Langley-Eustis for approximately 126 military vessels of various sizes and drafts. Maintaining unrestricted access along the approximately 9,205 ft. long navigation channel for military vessels on any stage of the tide is critical to fulfilling of the operational mission of Joint Base-Langley-Eustis. The channel is authorized to be maintained at depths which vary between -23 ft. to -14 ft. MLLW. Localized and general shoaling of the navigation channel has occurred since the last maintenance dredging was conducted in 2004.

Previous maintenance dredging of Skiffes Creek has been conducted hydraulically with the material pumped onshore into the Ft. Eustis Dredged Material Management Area (FEDMMA) upland disposal facility. Currently, the FEDMMA does not meet the factors of safety necessary to accept the estimated 25,000 cubic yards of dredge material estimated for this maintenance cycle. Therefore the proposed maintenance dredging will be conducted mechanically with the dredged material placed into barges and disposed offshore at the EPA-approved Norfolk Ocean Disposal Site (NODS), located approximately 17 nautical miles east of Cape Henry. The FEDMMA is scheduled to be rehabilitated for use during the next maintenance dredging event scheduled for 2016-2017, though following that event will be at full capacity and unavailable to receive future maintenance dredge material.

As you know the James River is designated as EFH for 14 federally managed species and also used extensively by numerous anadromous species for migration and spawning. The James River and Skiffes Creek are designated as confirmed and potential anadromous fish use areas respectively by the Virginia Department of Game and Inland Fisheries (DGIF). Mechanical dredging will remove the existing benthic community from the project channel and will produce increases in turbidity and may reduce dissolved oxygen levels in the immediate project area. Given the width of the James River at the project site (approx. 3 miles) these impacts are expected to be localized and temporary in nature.

The current maintenance dredging event is scheduled to begin early December 2014 and is anticipated to take approximately 120 days to complete. Provided the maintenance dredging can be sequenced to

begin from the deepest, outermost portion of the channel (station 0+00 to 77+64.16) and dredged towards the shallower shoreline portions to avoid the deepest dredging during the sensitive period of fish migration, it is our opinion that a time of year restriction (TOYR) on the dredging will not be necessary.

Thank you for the opportunity to review the Skiffes Creek Federal Navigation Channel maintenance dredging project. Please feel free to contact me if you have any questions .

Regards,

Dave

David L. O'Brien
Fisheries Biologist
NOAA Fisheries Service
Virginia Field Office
1375 Greate Rd.
P.O. Box 1346
Gloucester Point, VA 23062
804-684-7828 phone
804-684-7910 fax
david.l.o'brien@noaa.gov

Classification: UNCLASSIFIED
Caveats: NONE

ENDANGERED SPECIES ACT
SECTION 7 CONSULTATIONS



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT CORPS OF ENGINEERS
FORT NORFOLK 803 FRONT STREET
NORFOLK VIRGINIA 23510-1096

March 22, 2012

Operations Branch

Ms. Mary Colligan, Assistant Regional Director for Protected Services
National Marine Fisheries Service
Northeast Regional Office
55 Great Republic Drive
Gloucester, Massachusetts 01930-2276

Dear Ms. Colligan:

In order to comply with Section 7 of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*), all major Federal actions that may affect listed species or species proposed to be listed must consult with the National Marine Fisheries Service (NMFS). The NMFS has listed the Chesapeake Bay distinct population segment (DPS) of the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) as an endangered species. The final listing determination for the Chesapeake Bay DPS of Atlantic sturgeon was published in the Federal Register on February 6, 2012. I am requesting an informal Section 7 consultation to evaluate potential impacts from maintenance dredging of the Skiffes Creek Federal Navigation Project on the Chesapeake Bay DPS of the Atlantic sturgeon.

The Skiffes Creek Federal Navigation Project is located at Fort Eustis, Newport News, Virginia. The creek is approximately 4 miles long, and has a surface area of 137 acres. Skiffes Creek is a tidal creek which empties into the east side of the lower James River, 18 miles above its mouth. The total project distance is approximately 1.7 miles in length. The dredging distance upstream is approximately 0.37 miles in length.

Previous maintenance dredging was completed in 2004. The average dredging frequency has been approximately every 7 years. Maintenance dredging of Skiffes Creek project will be conducted during a fifteen-year period. Dredging will be conducted by hydraulic dredge to the maximum depth for each area removing approximately 500,000 cubic yards of material each dredging cycle. An approximate total of 1,500,000 cubic yards will be dredged over a fifteen-year period. Dredging is expected to commence during the month of January 2013 and be completed within 90 days.

Following are the project depths:

- a. One 7,800 foot long area, -19 feet below mean lower low water (station 0+00 - 77+64.16) variable in width.
- b. One 690 foot long area, -17 feet below mean lower low water (station 77+64.16 - 83+52.69) variable in width.

c. One 715 foot long area, -11 feet below mean lower low water (station 83+52.69 - 90+67.69) variable in width.

Dredging of the Skiffes Creek Federal Navigation Channel will be performed with a hydraulic cutterhead dredge. Cutterhead dredges previously used have been small, usually with a maximum pipe diameter of 18 inches. The dredged material will be pumped by hydraulic pipeline directly to the upland confined placement facility known as Fort Eustis Dredged Material Management Area (FEDMMA). The FEDMMA is an 80-acre facility located on the western portion of Fort Eustis, south of the Third Port facility. The dredged material is approximately 25% sand, 60% silt and 15% clay.

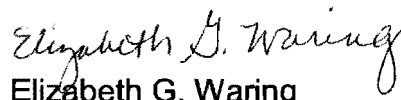
Maintenance dredging of the Skiffes Creek Federal Navigation Project has the potential to impact the Atlantic sturgeon. These impacts include the following:

- 1) burial, removal, and/or alteration of benthic habitat at the dredging site;
- 2) physical injury or death of adults or sub-adults due to entrainment by the dredge;
- 3) physical or biological impacts to water quality via:
 - a) decreased dissolved oxygen levels
 - b) predator/prey interactions
 - c) primary productivity and respiration
 - d) loss of benthic prey species
- 4) noise and presence of the dredge and related equipment

Enclosed are drawings of the project site. The site is not an area where spawning is known to occur. The incidence of Atlantic sturgeon in Skiffes Creek is low. Small juveniles are not likely using the area, but adults and sub-adults may transit the project area during migration or to forage. The effects of maintenance dredging of Skiffes Creek would be temporary in nature and are not likely to adversely affect Atlantic sturgeon in the project area. We are requesting your concurrence.

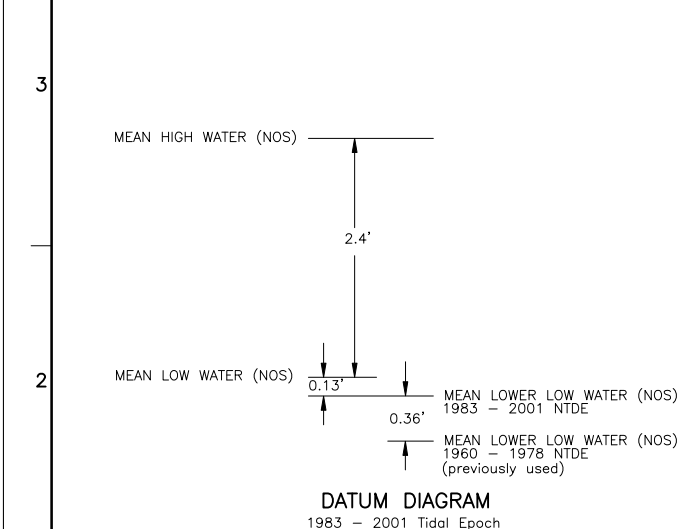
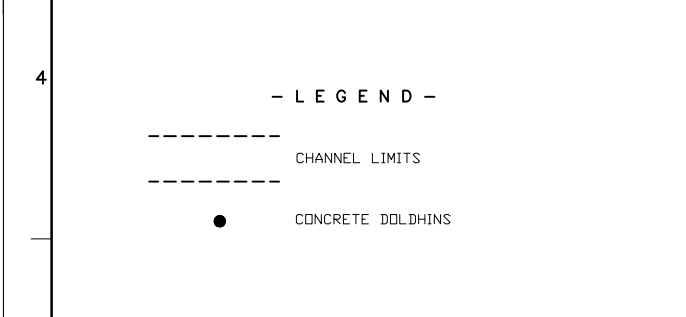
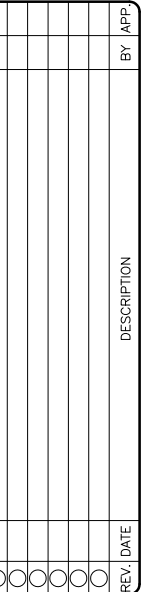
Should you have any questions or require further information on this submittal, please contact Ms. Teri Nadal of my staff at (757) 201-7299 or via email teresita.i.nadal@usace.army.mil. Thank you for your assistance.

Sincerely,


Elizabeth G. Waring
Chief, Operations Branch

Enclosure

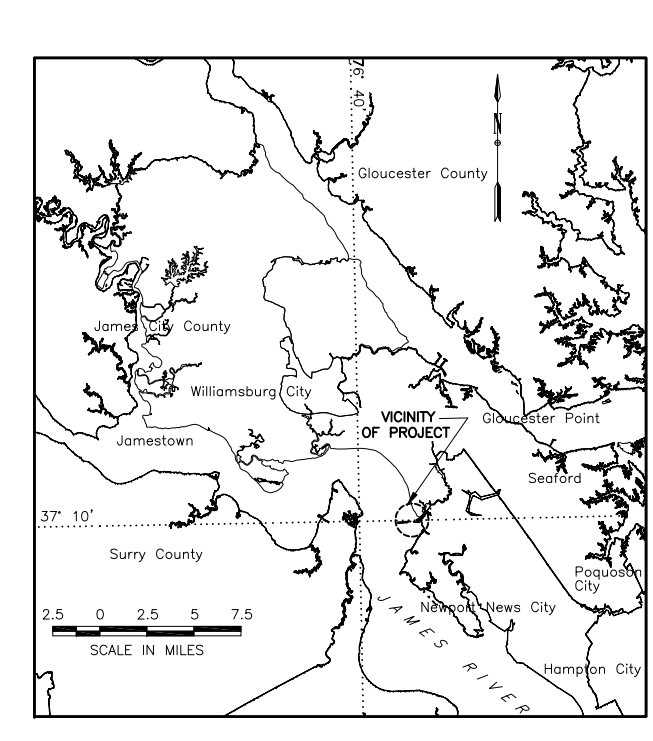
SKIFFES CREEK
PROJECT CONDITION
SURVEY OF OCTOBER 2008
JAMES RIVER, VIRGINIA



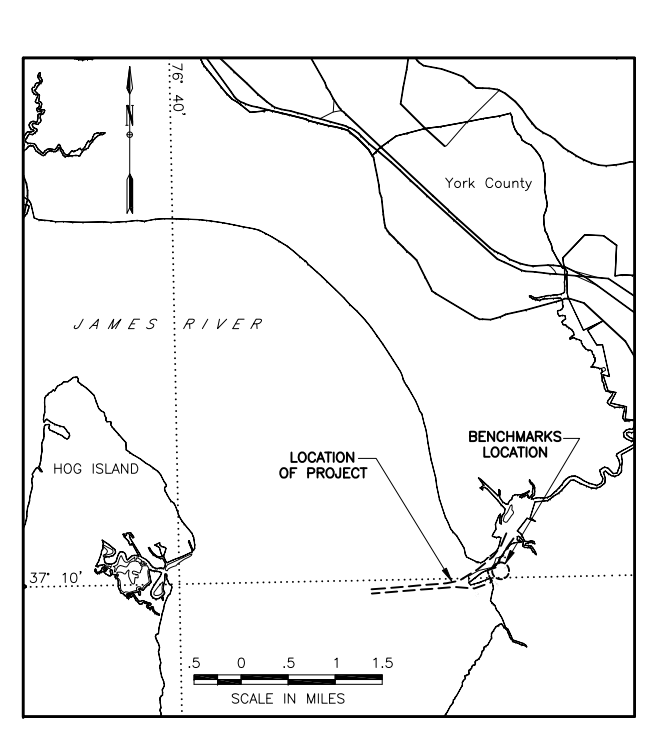
(not to scale)

INDEX TO DRAWING

SHEET NO.	TITLE
1	TITLE SHEET
2	MAPPING SHEET



VICINITY MAP



LOCATION MAP

- N O T E S -

MEAN LOWER LOW WATER (MLLW), 1960-1978 National Tidal Datum Epoch (NTDE) was determined by interpolating between MLLW-NGVD differentials at Scotland and Burwell Bay based on National Ocean Service (NOS) tidal observations and Corps of Engineers leveling. The update to the 1983-2001 NTDE was determined to be 0.36 foot by interpolating the NOS NTDE differentials at Sewells Point and Claremont VA.

SOUNDINGS are in feet referenced to NOS MLLW and were taken on 8 October 2008.

MEAN RANGE OF TIDE is 2.4 feet at Mulberry Point, James River, Virginia based on NOS observations.

COORDINATES are in U.S. Survey feet, referred to the Virginia State Plane Coordinate System, South Zone and are based on North American Datum of 1983.

PLANIMETRIC FEATURES were developed by stereo-photogrammetric methods which included a layered digital database from aerial photographs flown on 25 March 1995.

LAST DREDGED by Hampton Roads Leasing during the period 1 July - 1 September 2004 under Contract No. W91236-04-C-0039 dated 11 and 15 March 2004.

MEAN RANGE OF TIDE is 2.4 feet at Mulberry Point, James River, Virginia based on NOS observations.

COORDINATES are in U.S. Survey feet, referred to the Virginia State Plane Coordinate System, South Zone and are based on North American Datum of 1983.

PLANIMETRIC FEATURES were developed by stereo-photogrammetric methods which included a layered digital database from aerial photographs flown on 25 March 1995.

BENCHMARKS
Elevations are relative to
NOS MLLW, 1983-2001 NTDE

VERTICAL DATUM TABLE	
BENCHMARK	ELEVATION
CE "THIRD, 2001"	+9.94
CE "PORT, 2001"	+7.79
USE BM "CHISELED SQUARE #1, 1991"	+7.24

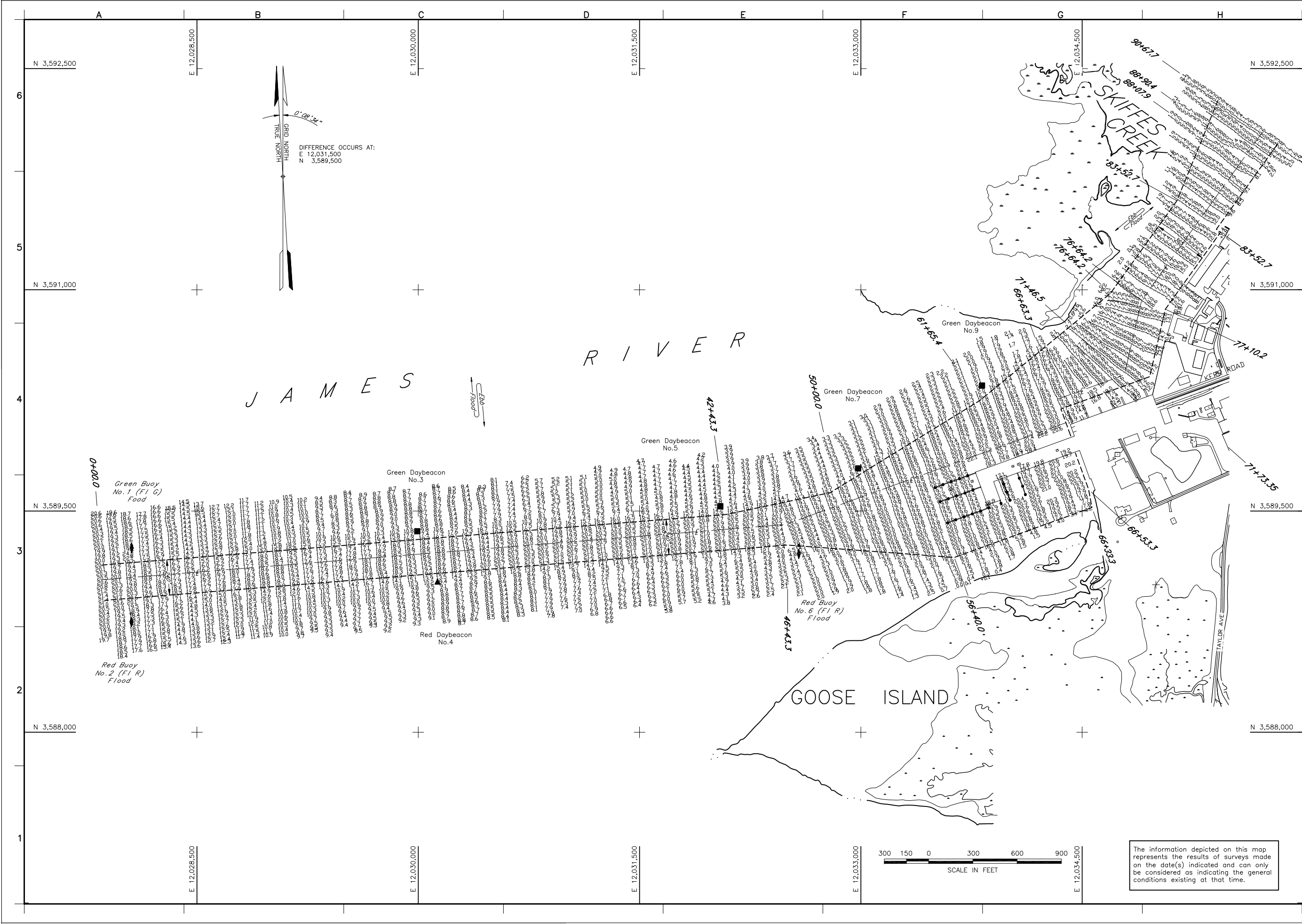
The information depicted on this map represents the results of surveys made on the date(s) indicated and can only be considered as indicating the general conditions existing at that time.

SIGNATURES AFFIXED BELOW INDICATE OFFICIAL
RECOMMENDATION AND APPROVAL OF ALL DRAWINGS
IN THIS SET AS INDICATED ON INDEX TO DRAWINGS.

<p>DEPARTMENT OF THE ARMY</p> <p>NORFOLK DISTRICT, CORPS OF ENGINEERS</p> <p>NORFOLK, VIRGINIA</p>	
REVIEWED: _____ CHIEF, NAVIGATION SUPPORT AND SURVEY SECTION	APPROVED: _____ CHIEF, OPERATIONS BRANCH
SUBMITTED: _____ CHIEF, DESIGN SECTION	APPROVED: _____ CHIEF, TECHNICAL SERVICES DIVISION

COORDINATES OF CENTERLINE STATIONS		
STATION	EAST (X)	NORTH (Y)
0+00.0	12,027,863.29	3,589,034.09
46+43.3	12,032,491.47	3,589,409.04
66+63.3	12,034,390.22	3,590,098.36
71+46.5	12,034,786.36	3,590,423.04
76+64.2	12,034,902.97	3,590,927.38
90+67.7	12,035,721.23	3,592,067.71

SKIFFES CREEK
PROJECT CONDITION
SURVEY OF OCTOBER 2008
JAMES RIVER, VIRGINIA



REV.	DATE	DESCRIPTION	BY	APP.

DESIGNED BY: R.J.W.	DATE: 13 AUG 09
DRAWN BY: M.L.M.	SCALE: AS SHOWN
CHECKED BY: S.J.P.	NORFOLK DISTRICT FILE NO.: H-29-16-41(2)
PROJECT NO.:	
DRAWING NO.:	
SUPPLIED BY: Waterway Surveys and Engineering, Ltd.	

SKIFFES CREEK
PROJECT CONDITION
SURVEY OF OCTOBER 2008
JAMES RIVER, VIRGINIA



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

APR 17 2012

Elizabeth G. Waring
Department of the Army
Norfolk District Corps of Engineers
Fort Norfolk 803 Front Street
Norfolk, VA 23510-1096
Attn: Operations Branch

Re: Skiffles Creek Federal Navigation Project

Dear Ms. Waring,

Your letter, regarding the Army Corps of Engineers, Norfolk District's (The Corps) proposal to dredge the Skiffles Creek Federal Navigation Channel in Fort Eustis, Newport News, Virginia, requested our concurrence with your preliminary determination that the project is not likely to adversely affect any species listed as threatened or endangered under the Endangered Species Act (ESA) of 1973, as amended. Based on information provided to us on March 22, 2012, we have conducted a consultation in accordance with Section 7 of the ESA. We concur with your determination. Our supporting analysis is provided below.

Proposed Project

The proposed project is located in Skiffles Creek, which is a tidal creek that flows into the east side of the lower James River, 18 miles above its confluence with Chesapeake Bay. Skiffles Creek is approximately 4 miles long and has a surface area of 137-acres. The total length proposed for dredging in the federal channel is 1.7 miles (with 1.33 miles of overlap in the James River). The total distance to be dredged within Skiffles Creek itself is 0.37 miles.

Previous maintenance dredging was completed in 2004, and the average dredge cycle is once every 7 years. Currently, the maintenance dredging is proposed to be accomplished within a 15 year period. Dredging will be conducted with a hydraulic cutterhead dredge to the maximum depth for each reach, ranging from -11 to -19 feet below mean lower low water (MLLW), and will remove approximately 500,000 cubic yards of material per dredging cycle. An approximate total of 1,500,000 cubic yards will be dredged over the 15 year period. The current dredge cycle will begin in January 2013 and last for 90 days.

The cutterhead dredges used for this project have previously been small, usually with a maximum pipe diameter of 18 inches. The dredged material will be pumped by hydraulic pipeline directly to the upland confined placement facility known as Fort Eustis Dredged Material Management Area (FEDMMA). The FEDMMA is an 80-acre facility located near the



project site. The dredged material is 25% sand, 60% silt, and 15% clay, which constitutes a relatively fine-grained sediment type.

NMFS listed species in Project Area

The action area is defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 CFR § 402.02). For this project, the action area includes the dredge footprint as well as the underwater area where effects of dredging (e.g., increase in suspended sediment) will occur. Based on analysis of hydraulic dredging activities (ACOE 1983), increased sediment levels are likely to be present for no more than 1,000-feet downstream of the dredge area. As such, the action area is the area within Skiffles Creek and the James River located within a 1,000-foot radius from the dredge footprint. This area will encompass all of the effects of the proposed dredging project.

Sea Turtles

Four species of federally threatened or endangered sea turtles under the jurisdiction of NMFS may be found seasonally in the coastal waters of New York: federally threatened Northwest Atlantic Ocean distinct population segment (DPS) of loggerhead (*Caretta caretta*), and the federally endangered Kemp’s ridley (*Lepidochelys kempi*), green (*Chelonia mydas*) and leatherback (*Dermochelys coriacea*) sea turtles, although the latter species tends to frequent offshore habitats (not within bay systems/estuarine habitat) is unlikely to occur in the action area (i.e., depths up to approximately 20 feet). In general, listed sea turtles are seasonally distributed in coastal US Atlantic waters, migrating to and from habitats extending from Florida to New England, with overwintering concentrations in southern waters. Sea turtles are expected to be in the Chesapeake Bay during warmer months. This typically equates to April through December in Virginia waters (Morreale 1999; Morreale 2003; Morreale and Standora 2005; Shoop and Kenney 1992).

The sea turtles in the Chesapeake Bay area are typically small juveniles with the most abundant species being the loggerhead followed by the Kemp’s ridley sea turtle. Several studies have examined the seasonal distribution of sea turtles in the mid-Atlantic, including Maryland and Virginia. Sea turtles begin appearing in nearshore habitats of the mid-Atlantic as water temperatures rise to greater than 11°C during the spring and then remain in the region throughout the summer and fall (Morreale and Standora 2005). As temperatures decline in the fall (usually beginning the first week of November), sea turtles tend to leave their coastal habitats and join a larger contingent of other turtles migrating southward to overwinter in southern waters. Consequently, by the end of November, listed sea turtles have left the waters of the Chesapeake Bay (Shoop and Kenney 1992; Musick and Limpus 1997; Morreale and Standora 2005). Sea turtles are not known to move into the James River to forage; however, they may occur near the confluence of the river and Chesapeake Bay.

Atlantic sturgeon

On February 6, 2012, we published two final rules listing five DPSs of Atlantic sturgeon. Atlantic sturgeon originating from the New York Bight, Chesapeake Bay, South Atlantic and Carolina DPSs were listed as endangered, while the Gulf of Maine DPS was listed as threatened

(77 FR 5880; 77 FR 5914). The marine range of all five DPSs extends along the Atlantic coast from Canada to Cape Canaveral, Florida.

Atlantic sturgeon spawn in their natal river¹, with spawning migrations generally occurring during February-March in southern systems, April-May in Mid-Atlantic systems, and May-July in Canadian systems (Murawski and Pacheco 1977; Smith, 1985; Bain 1997; Smith and Clugston 1997; Caron *et al.* 2002). Young remain in the river/estuary until approximately age 2 and at lengths of 30-36 inches before emigrating to open ocean as subadults (Holland and Yelverton 1973; Dovel and Berggren 1983; Dadswell 2006; ASSRT 2007). After emigration from the natal river/estuary, subadults and adult Atlantic sturgeon travel within the marine environment, typically in waters between 16 to 164 feet in depth, using coastal bays, sounds, and marine waters (Vladykov and Greeley 1963; Murawski and Pacheco 1977; Dovel and Berggren 1983; Smith 1985; Collins and Smith 1997; Welsh *et al.* 2002; Savoy and Pacileo 2003; Stein *et al.* 2004; Laney *et al.* 2007; Dunton *et al.* 2010; Erickson *et al.* 2011). However, the distribution of Atlantic sturgeon is strongly associated with prey availability, and as a result, Atlantic sturgeon may occur in small tributaries of larger rivers (such as Skiffles Creek) if suitable forage (e.g., benthic invertebrates such as mollusks and crustaceans) and appropriate habitat conditions are present.

Based on the best available information, Atlantic sturgeon originating from any of five DPSs could occur in the James River; however, the Chesapeake Bay DPS spawns in upstream reaches of this river. The 340 mile long James River is Virginia's largest river and the largest tributary to the Chesapeake Bay (Bushnoe *et al.*, 2005). Tidal waters extend from the mouth, west to Richmond, VA, at the river's fall line (Bushnoe *et al.*, 2005). Based on modeling work using features associated with spawning habitat (e.g., suitable substrate), Bushnoe *et al.* (2005) concluded that the Turkey Island oxbow and the James Neck oxbow were potential spawning sites for Atlantic sturgeon in the James River.

Environmental cues appear to play a strong role in use of the James River by adult, presumably Chesapeake Bay DPS, Atlantic sturgeon (Hager *et al.*, 2011). Adult sturgeon enter the river in spring when water temperatures are around 17° C, and occur from river mile 18 to river mile 67 before departing from the river in June when water temperatures are around 24° C (Hager *et al.*, 2011). Tracking data for 2010 demonstrated a congregation of sturgeon in freshwater areas at river mile 48, suggesting the possibility of suitable spawning habitat in this area (Hager *et al.*, 2011).

Adult sturgeon appear to be absent from the James River for most of the summer until late August when tagged fish are once again detected in the river (Hager *et al.*, 2011). During the late summer-early fall residency (August-October), fish ascend the river rapidly and congregate in upriver sites between rkm 48 and the fall line near Richmond, VA; possibly in response to physiologically stressful conditions (e.g., low dissolved oxygen and elevated water temperature)

¹ Known spawning (natal) rivers: Gulf of Maine DPS: Kennebec River; New York Bight DPS: Hudson and Delaware Rivers; Chesapeake Bay DPS: James River; and Carolina DPS: Roanoke, Tar-Pamlico, Cape Fear, Waccamaw, Great Pee Dee, and Santee-Cooper Rivers. Additional spawning rivers may exist; however, at this time these locations are unknown or have not yet been confirmed.

in the lower James River and Chesapeake Bay (Hager *et al.*, 2011). As temperature declines in late September or early October, adults disperse through downriver sites and begin to move out of the river (Hager *et al.*, 2011). By November, adults occupy only lower river sites (Hager *et al.*, 2011). By December, adults are undetected on the tracking array and, thus, are presumed to be out of the river (Hager *et al.*, 2011).

The spawning season for Chesapeake Bay DPS Atlantic sturgeon is April –May based on historical and current evidence that includes: (1) records of large harvests near the mouth of the Chesapeake Bay and in the lower James River in April; (2) incidental observations of adult-sized carcasses and incidental capture of adult-sized live fish in April; (3) detection of sonically tagged sturgeon in current scientific studies; and, (4) capture of a large female sturgeon in spawning condition within the James River in April 2011 (Hildebrand and Schroeder, 1928; Vladykov and Greeley, 1963; Bushnoe *et al.*, 2005; ASSRT, 2007; Blakenship, 2011a). Capture of another large female in post-spawning condition within the James River in September 2011 suggests the possibility of a second late-summer spawning run (Balazik, unpublished data). However, further analyses are needed to confirm whether fall spawning is occurring in the James River.

Effects of the Action

Dredging

Dredging operations have the potential to interact with listed species as well as reduce the forage base of these species via the alteration of existing biotic assemblages. A hydraulic cutterhead (pipeline) dredge will be used for this project. Sea turtles are not known to be vulnerable to entrainment in cutterhead dredges, presumably because they are able to avoid the relatively small intake and low intake velocity. Additionally, due to the timing of the project (finished by March of 2013 and subsequent years), sea turtles will not be present in the Chesapeake Bay at this time of year. April is the beginning of their seasonal movements into these waters, and it is unlikely that sea turtles would move 18 miles upstream into the James River near Skiffles Creek to forage even if they were seasonally present. Based on this information, we have determined that the likelihood of an interaction between a sea turtle and the hydraulic dredge is discountable and any effects to the prey base for sea turtles will also be discountable.

Similar to sea turtles, Atlantic sturgeon are not known to be vulnerable to cutterhead dredges. Cutterhead dredge heads are placed within the sediments at the dredge site, and fish that may be in the action area would be sub-adult and adult Atlantic sturgeon, which are quite large, thus further reducing the likelihood of any interaction. Early life stages (ELs) including eggs and larvae (which do not move off the benthos) would not be present near Skiffles Creek, as spawning does not occur in the lower James River. A study by the Norfolk Corps (Cameron 2009) and a second study by the Philadelphia Corps (Environmental Research and Consulting, Inc. 2012) demonstrated through telemetry studies in the James River and Delaware River, respectively, that Atlantic sturgeon were unaffected by the noise associated with dredges, or the presence of cutterhead dredges themselves. They did not exhibit avoidance behavior, the cutterhead dredge in full-operation did not impede their passage in-river, and individuals were not entrained during dredging activities. Additionally, due to the timing of the project (January-March), Atlantic sturgeon are not expected to move into the James River to engage in spawning and foraging activities during this period. Adult Atlantic sturgeon begin their spawning migrations in the James River during April, and data suggest that adults move out of the river to

overwintering sites or into upper reaches of the Appomattox River by December, therefore the presence of Atlantic sturgeon in the lower James River during the proposed project time period is unlikely. Additionally, the Skiffles Creek area does not appear to be a major foraging area for Atlantic sturgeon due to the fact that it is a regularly maintained (i.e. disturbed) navigation channel, and the benthic community likely comprises organisms adapted to disturbance (e.g. annelid worms, amphipods). Atlantic sturgeon prefer mollusks and crustaceans. Based on the previous information, the likelihood of interaction between an Atlantic sturgeon and the hydraulic dredge is discountable, and any effects to foraging Atlantic sturgeon will be insignificant and/or discountable.

Water Quality Effects of Dredging

Dredging may cause a temporary increase in suspended sediment in the dredge area. If any sediment plume does occur, it is expected to be small and suspended sediment is expected to settle out of the water column within a few hours. Turbidity levels associated with hydraulic dredging activities produce sediment plumes typically ranging from 11.5 to 282.0 mg/L (ACOE 2007, Anchor Environmental 2003).

Studies of the effects of turbid waters on fish suggest that concentrations of suspended solids can reach thousands of milligrams per liter before an acute toxic reaction is expected (Burton 1993). The studies reviewed by Burton demonstrated lethal effects to fish at concentrations of 580.0 mg/L to 700,000.0 mg/L depending on species. Studies with striped bass adults showed that pre-spawners did not avoid concentrations of 954.0 to 1,920.0 mg/L to reach spawning sites (Summerfelt and Moiser 1976 and Combs 1979 in Burton 1993). While there have been no directed studies on the effects of total suspended solids (TSS) on Atlantic sturgeon, Atlantic sturgeon sub-adults and adults are often documented in turbid water and Dadswell (1984) reports that sturgeon are more active under lowered light conditions, such as those in turbid waters. As such, Atlantic sturgeon are assumed to be at least as tolerant to suspended sediment as other estuarine fish such as striped bass. The TSS levels expected for dredging (11.5 to 282.0 mg/L) are below those shown to have an adverse effect on fish (580.0 mg/L for the most sensitive species, with 1,000.0 mg/L more typical; see summary of scientific literature in Burton 1993) and benthic communities (390.0 mg/L (EPA 1986)). Based on this information, the effect on Atlantic sturgeon of suspended sediment resulting from dredging activities will be insignificant.

No information is available on the effects of turbidity or suspended sediment on juvenile and adult sea turtles. As noted above, studies of the effects of turbid waters on fish suggest that concentrations of suspended solids can reach thousands of milligrams per liter before an acute toxic reaction is expected (Burton 1993). TSS is most likely to affect sea turtles if a plume causes a barrier to normal behaviors or if sediment settles on the bottom affecting sea turtle prey. However, as detailed, sea turtles are not expected to be in the action area. Based on this information, the effect on sea turtles of suspended sediment resulting from dredging activities will be discountable.

Ongoing Maintenance Dredging

As the effects of maintenance dredging will be the same as those of this maintenance dredge cycle, the effects of an additional dredging cycle during the 15 year life of the permit will also be insignificant or discountable.

Conclusions

Based on the analysis that any effects to listed sea turtles and Atlantic sturgeon will be insignificant or discountable, we are able to concur with your determination that the proposed project is not likely to adversely affect any listed species under NMFS jurisdiction. Therefore, no further consultation pursuant to section 7 of the ESA is required. Reinitiation of consultation is required and shall be requested by the Federal agency or by the Service, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (a) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the consultation; (b) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the consultation; or (c) If a new species is listed or critical habitat designated that may be affected by the identified action. Should you have any questions about this correspondence please contact Chris Vaccaro at (978) 281-9167 or by e-mail (Christine.Vaccaro@Noaa.gov).

Sincerely,



Daniel S. Morris
Acting Regional Administrator

File Code: H:\S7ST\Section 7\Non-Fisheries\ACOE\Informal\2012\Norfolk District\NER201201006_ACOE_Skiffles Creek Dredging, VA
PCTS: I/NER/2012/01006

Ec: Rusanowsky, NMFS/HCD
Vaccaro, NMFS/NER
Nadel, ACOE/Norfolk

References

- Anchor Environmental. 2003. Literature review of effects of resuspended sediments due to dredging. June. 140pp.
- Army Corps of Engineers (ACOE). 1983. "Dredging and Dredged Material Disposal," Engineer Manual 1110-2-5025, Office, Chief of Engineers, Washington, DC.
- ACOE. 2007. Winthrop Shores Reservation Restoration Program Endangered Species Biological Assessment. Prepared by Normandeau Associates. Submitted to NMFS Northeast Regional Office on February 7, 2007. 46 p.
- Atlantic Sturgeon Status Review (ASSRT). 2007.
http://www.nero.noaa.gov/prot_res/CandidateSpeciesProgram/AtlSturgeonStatusReviewReport.pdf
- Bain, M. B. 1997. Atlantic and shortnose sturgeons of the Hudson River: Common and Divergent Life History Attributes. *Environmental Biology of Fishes* 48: 347-358.
- Burton, W.H. 1993. Effects of bucket dredging on water quality in the Delaware River and the potential for effects on fisheries resources. Versar, Inc., 9200 Rumsey Road, Columbia, Maryland 21045.
- Cameron, Sarah. 2009. ACOE Norfolk. Assessing the impacts of channel dredging on Atlantic sturgeon movement and behavior. Presentation. In press.
- Caron, F., D. Hatin, and R. Fortin. 2002. Biological characteristics of adult Atlantic sturgeon (*Acipenser oxyrinchus*) in the Saint Lawrence River estuary and the effectiveness of management rules. *Journal of Applied Ichthyology* 18: 580-585.
- Dadswell, M.J. 1984. Status of the Shortnose Sturgeon, *Acipenser brevirostrum*, in Canada. *The Canadian Field-Naturalist* 98 (1): 75-79.
- Collins, M. R. and T. I. J. Smith. 1997. Distribution of shortnose and Atlantic sturgeons in South Carolina. *North American Journal of Fisheries Management*. 17: 995-1000.
- Dadswell, M. 2006. A review of the status of Atlantic sturgeon in Canada, with comparisons to populations in the United States and Europe. *Fisheries* 31: 218-229.
- Dovel, W. L. and T. J. Berggren. 1983. Atlantic sturgeon of the Hudson River estuary, New York. *New York Fish and Game Journal* 30: 140-172.
- Environmental Protection Agency (EPA). 1986. Quality Criteria for Water. EPA 440/5-86-001.
- Dunton *et al.* 2010. Abundance and distribution of Atlantic sturgeon (*Acipenser oxyrinchus*)

- within the Northwest Atlantic Ocean, determined from five fishery-independent surveys. *Fish. Bull.* 108(4):450–465.
- Erickson *et al.* 2011. Use of pop-up satellite archival tags to identify oceanic-migratory patterns for adult Atlantic Sturgeon, *Acipenser oxyrinchus oxyrinchus* Mitchell, 1815. *J. Appl. Ichthyol.* 27: 356–365.
- Holland, B.F., Jr. and G.F. Yelverton. 1973. Distribution and biological studies of anadromous fishes offshore North Carolina. North Carolina Department of Natural and Economic Resources, Division of Commercial and Sports Fisheries, Morehead City. Special Scientific Report 24:1-132.
- Laney, R.W., J.E. Hightower, B.R. Versak, M.F. Mangold, W.W. Cole Jr., and S.E. Winslow. 2007. Distribution, Habitat Use, and Size of Atlantic Sturgeon Captured during Cooperative Winter Tagging Cruises, 1988-2006. American Fisheries Society Symposium 56: 000-000.
- Morreale, S.J. 1999. Oceanic migrations of sea turtles. PhD Thesis. Cornell University.
- Morreale, S.J. 2003. Assessing health, status, and trends in Northeastern sea turtle populations. Interim report: Sept. 2002-Nov. 2003.
- Morreale, S. J. and V. J. Burke. 1997. Conservation and Biology of Sea Turtles in the Northeastern United States, p.41-46. *In*: T. Tyning (Editor), Status and Conservation of Turtles of the Northeastern United States. Serpents Tale Natural History Book Distributors, Lanesboro, Minnesota. V. Burke, School of Natural Resources, Univ. Missouri, 112 Stephens Hall, Columbia, Missouri 65211 USA.
- Morreale, S.J. and E.A. Standora. 1990. Occurrence, movement, and behavior of the Kemp's ridley and other sea turtles in New York waters. Annual report for the NYSDEC, Return A Gift To Wildlife Program: April 1989 -April 1990.
- Morreale, S.J., and E.A. Standora. 1993. Occurrence, movement, and behavior of the Kemp's ridley and other sea turtles in New York waters. Okeanos Ocean Research Foundation Final Report April 1988-March 1993. 70 pp.
- Morreale, S.J. and E.A. Standora. 2005. Western North Atlantic waters: Crucial developmental habitat for Kemp's ridley and loggerhead sea turtles. *Chel. Conserv. Biol.* 4(4):872-882.
- Murawski, S. A. and A. L. Pacheco. 1977. Biological and fisheries data on Atlantic Sturgeon, *Acipenser oxyrinchus* (Mitchill). National Marine Fisheries Service Technical Series Report 10: 1-69.
- Savoy, T. and D. Pacileo. 2003. Movements and important habitats of subadult Atlantic sturgeon in Connecticut waters. *Transactions of the American Fisheries Society* 132: 1-8.

- Shoop, C.R. and R.D. Kenney. 1992. Seasonal distributions and abundances of loggerhead and leatherback sea turtles in waters of the northeastern United States. *Herpetological Monographs* 6: 43-67.
- Smith, T. I. J. 1985. The fishery, biology, and management of Atlantic sturgeon, *Acipenser oxyrinchus*, in North America. *Environmental Biology of Fishes* 14(1): 61-72.
- Smith, T. I. J. and J. P. Clungston. 1997. Status and management of Atlantic sturgeon, *Acipenser oxyrinchus*, in North America. *Environmental Biology of Fishes* 48: 335-346.
- Standora, E.A., S.J. Morreale, and V.J. Burke. 1992. Application of recent advances in satellite microtechnology: Integration with sonic and radio tracking of juvenile Kemp's ridleys from Long Island, New York. In: Salmon, M., and Wyneken, J. (Compilers). *Proceedings of the Eleventh Annual Workshop on Sea Turtle Biology and Conservation*. NOAA Tech. Memo. NMFS-SEFSC-302, pp. 111-113.
- Stein, A. B., K. D. Friedland, and M. Sutherland. 2004. Atlantic sturgeon marine distribution and habitat use along the northeastern coast of the United States. *Transactions of the American Fisheries Society* 133: 527-537.
- Vladykov, V.D. and J.R. Greeley. 1963. Order Acipenseroidea. Pages 24-60 in *Fishes of the Western North Atlantic*. Memoir Sears Foundation for Marine Research 1(Part III). xxi + 630 pp.
- Welsh, Stuart A., Michael F. Mangold, Jorgen E. Skjeveland, and Albert J. Spells. 2002. Distribution and Movement of Shortnose Sturgeon (*Acipenser brevirostrum*) in the Chesapeake Bay. *Estuaries* Vol. 25 No. 1: 101-104.



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT CORPS OF ENGINEERS
FORT NORFOLK 803 FRONT STREET
NORFOLK VIRGINIA 23510-1096

May 29, 2013

Operations Branch

Ms. Mary Colligan, Assistant Regional Director for Protected Services
National Marine Fisheries Service
Northeast Regional Office
55 Great Republic Drive
Gloucester, Massachusetts 01930-2276

Dear Ms. Colligan:

The Norfolk District, U. S. Army Corps of Engineers, completed a Section 7 consultation in 2012 with the National Marine Fisheries Service (NMFS) of no adverse effect for sea turtles and Atlantic sturgeon for maintenance dredging of the Skiffes Creek Federal Navigation Project. Since the April 17, 2012 NMFS consultation determination, two additional actions are being evaluated for maintenance dredging of the Skiffes Creek Federal Navigation Project. These are the inclusion of mechanical dredging and dredged material placement at the Norfolk Ocean Disposal Site (NODS).

In order to comply with Section 7 of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*), all major Federal actions that may affect listed species or species proposed to be listed must consult with the NMFS. The NMFS has listed the Chesapeake Bay distinct population segment (DPS) of the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) as an endangered species. The final listing determination for the Chesapeake Bay DPS of Atlantic sturgeon was published in the Federal Register on February 6, 2012. I am requesting an informal Section 7 consultation to evaluate potential impacts from mechanical dredging and dredged material placement at NODS for the Skiffes Creek Federal Navigation Project on sea turtles and the Chesapeake Bay DPS of the Atlantic sturgeon.

The Skiffes Creek Federal Navigation Project is located at Fort Eustis, Newport News, Virginia. The creek is approximately 4 miles long, and has a surface area of 137 acres. Skiffes Creek is a tidal creek which empties into the east side of the lower James River, 18 miles above its mouth. The total project distance is approximately 1.7 miles in length. The dredging distance upstream is approximately 0.37 miles in length.

The NODS is located in the Atlantic Ocean approximately 17 miles east of Cape Henry and approximately 2 statute miles north/northwest of The Chesapeake Light Tower. The NODS is approximately 50 square nautical miles in size with a circular

radius of 4 nautical miles and water depths ranging from 43 to 85 feet. The center point coordinate of the site is north latitude 36° 59' and west longitude and 75° 39'.

The NODS was designated by the Environmental Protection Agency (EPA) pursuant to Section 102(c) of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended, as suitable for ocean disposal of dredged material on July 2, 1993 (FR. Vol. 5a No. 126). The NODS is located in the Atlantic Ocean approximately 17 miles east of Cape Henry and is approximately 50 square nautical miles in size. The site is circular with a radius of 4 nautical miles and the water depth ranges from 43 to 85 feet. The NODS has seemingly unlimited capacity and was designated for use as a placement site for suitable materials from the Inner Harbor channels within the Port of Hampton Roads and other lower Chesapeake Bay dredged material. A Biological Opinion was issued by the NMFS for NODS on October 16, 2012.

Previous maintenance dredging of the Skiffes Creek Federal Navigation Project was completed in 2004. The average dredging frequency has been approximately every 7 years. Maintenance dredging of Skiffes Creek project will be conducted during a fifteen-year period. Dredging will be conducted by hydraulic dredge to the maximum depth for each area removing approximately 500,000 cubic yards of material each dredging cycle. An approximate total of 1,500,000 cubic yards will be dredged over a fifteen-year period. Dredging is expected to commence in 2014.

Following are the project depths:

- a. One 7,800 foot long area, -19 feet below mean lower low water (station 0+00 - 77+64.16) variable in width.
- b. One 690 foot long area, -17 feet below mean lower low water (station 77+64.16 - 83+52.69) variable in width.
- c. One 715 foot long area, -11 feet below mean lower low water (station 83+52.69 - 90+67.69) variable in width.

There are four species of federally threatened or endangered sea turtles under the jurisdiction of the NMFS that may be found seasonally in the coastal waters of Virginia.

Leatherback sea turtle (<i>Dermochelys coriacea</i>)	Endangered
Loggerhead sea turtle (<i>Caretta caretta</i>)	Threatened
Kemp's ridley sea turtle (<i>Lepidochelys kempii</i>)	Endangered
Green sea turtle (<i>Chelonia mydas</i>)	Endangered

Leatherback sea turtles tend to frequent offshore habitats and are unlikely to be in the project area. The loggerhead sea turtle is the most abundant species of sea turtle in U.S. waters. In general, the listed sea turtles are seasonally distributed in the coastal U. S. Atlantic waters, migrating to and from habitats that extend from Florida to New England, with overwintering in southern waters.

Sea turtles are expected to be in the Virginia Chesapeake Bay during warmer months (April through November). Sea turtles are typically small juveniles with the most abundant species being the loggerhead followed by the Kemp's ridley sea turtle. Studies have examined the seasonal distribution of sea turtles in the mid-Atlantic, including Maryland and Virginia. Sea turtles begin appearing in nearshore habitats of the mid-Atlantic as water temperatures rise during spring and then remain in the region throughout the fall. As temperatures decline in the fall, sea turtles tend to leave their coastal habitats and join a larger contingent of other sea turtles migrating southward to overwinter in southern waters. By the end of November, the majority of sea turtles have left the waters of the Virginia.

Dredging of the Skiffes Creek Federal Navigation Channel may be performed with a hydraulic cutterhead dredge or a mechanical dredge. The dredged material is approximately 25% sand, 60% silt and 15% clay.

Cutterhead dredges previously used have been small, usually with a maximum pipe diameter of 18 inches. The dredged material will be pumped by hydraulic pipeline directly to the upland confined placement facility known as Fort Eustis Dredged Material Management Area (FEDMMA). The FEDMMA is an 80-acre facility located on the western portion of Fort Eustis, south of the Third Port facility.

A hydraulic cutterhead dredge uses a cutterhead to loosen or dislodge sediments to hydraulically capture the material. The slurried sediment is transported through a pipeline to the placement site. Because pipeline dredges pump directly to the placement site, they can operate continuously and can be very productive, and cost efficient. Sea turtles are not known to be vulnerable to entrainment in cutterhead dredges. Similar to sea turtles, adult Atlantic sturgeon are not known to be vulnerable to cutterhead dredges.

Mechanical dredges consist of clamshell type dredges or articulated mechanical (excavator) dredges. The dredged material will be transported by barge to the NODS or Shirley Plantation/Weanack facility.

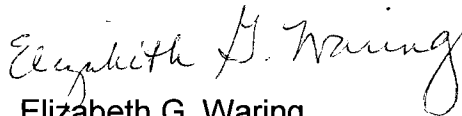
Maintenance dredging of the Skiffes Creek Federal Navigation Project has the potential to impact the Atlantic sturgeon and sea turtles. These impacts include the following:

- 1) burial, removal, and/or alteration of benthic habitat at the dredging site;
- 2) physical injury or death of adults or sub-adults due to entrainment by the dredge;
- 3) physical or biological impacts to water quality via:
 - a) decreased dissolved oxygen levels
 - b) predator/prey interactions
 - c) primary productivity and respiration
 - d) loss of benthic prey species
- 4) noise and presence of the dredge and related equipment

Enclosed are drawings of the project site. The Skiffes Creek Federal Navigation Channel is located in a high traffic area utilized by military watercraft and other government agencies in cargo operations, logistics management, training and vessel operation. Additionally, Skiffes Creek is used by commercial vessels that require access to industrial complexes located upstream. It is unlikely that Atlantic sturgeon would be present in the project area. The site is not an area where spawning is known to occur. The incidence of Atlantic sturgeon in Skiffes Creek is low. Small juveniles are not likely using the area, but adults and sub-adults may transit the project area during migration or to forage. Atlantic sturgeon have the ability to leave the area prior to commencement of maintenance dredging. Likewise, any sea turtles that may be in the project area have the ability to leave the area prior to commencement of dredging. The effects of maintenance dredging of the Skiffes Creek Federal Navigation Project would be temporary in nature and are not likely to adversely affect Atlantic sturgeon or sea turtles in the project area. We are requesting your concurrence with this determination.

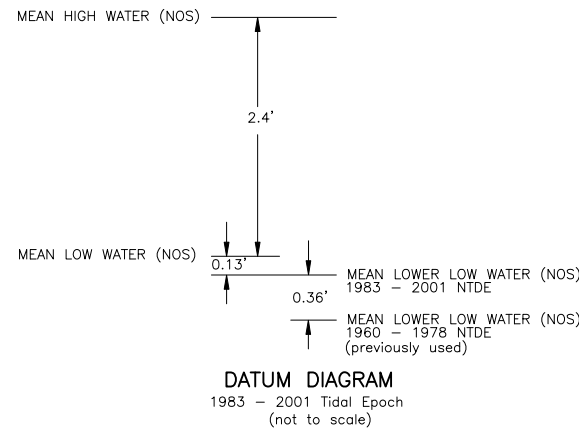
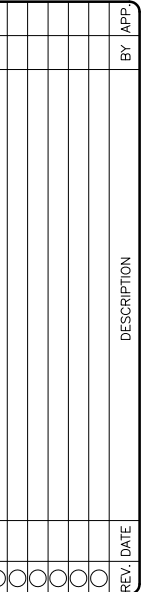
Should you have any questions or require further information on this submittal, please contact Ms. Teri Nadal of my staff at (757) 201-7299 or via email teresita.i.nadal@usace.army.mil. Thank you for your assistance.

Sincerely,


Elizabeth G. Waring
Chief, Operations Branch

Enclosure

SKIFFES CREEK
PROJECT CONDITION
SURVEY OF OCTOBER 2008
JAMES RIVER, VIRGINIA



SHEET NO.	TITLE	FILE NUMBER
1	TITLE SHEET	FILE NO. H-29-16-41(1)
2	MAPPING SHEET	FILE NO. H-29-16-41(2)

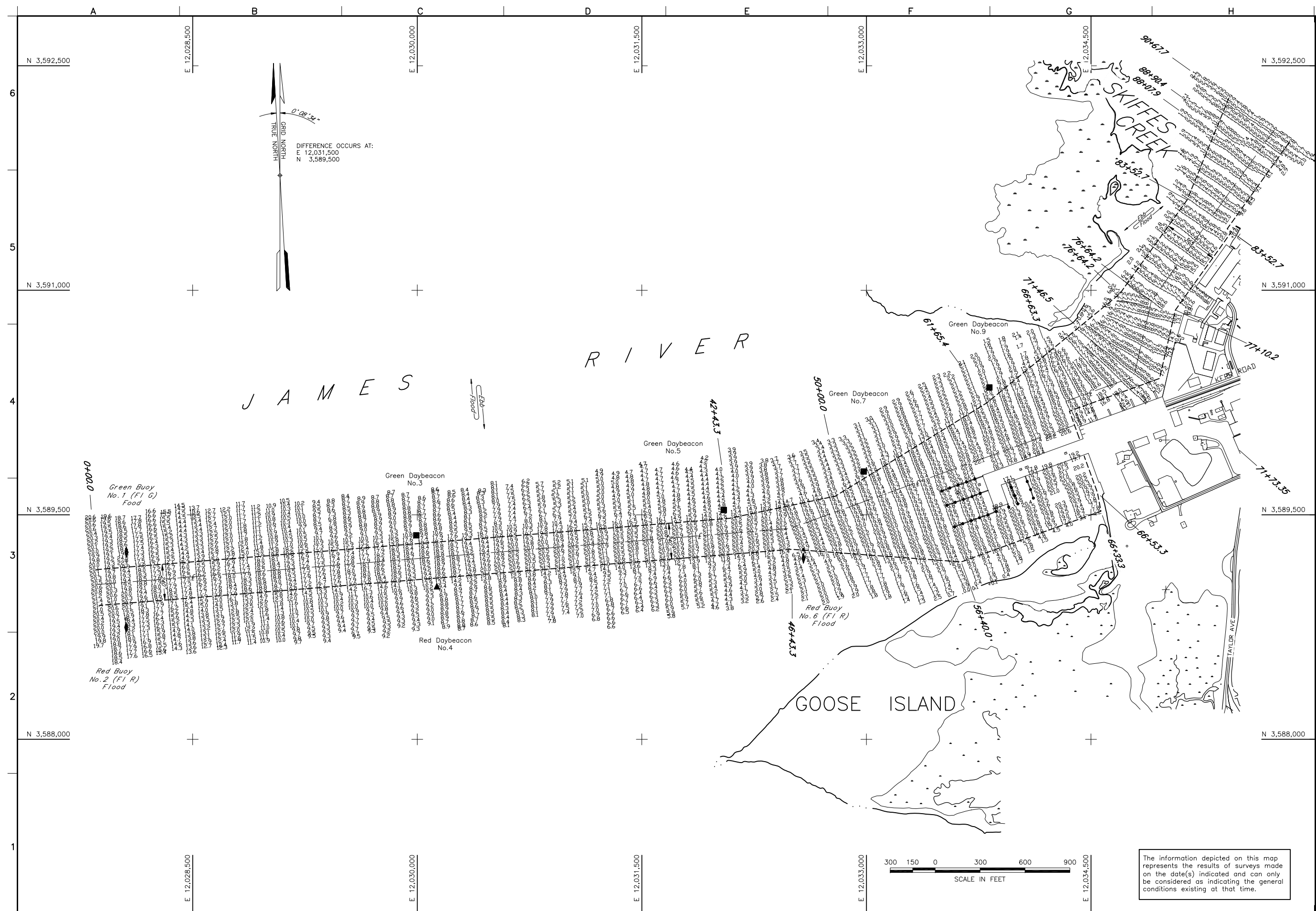


LAST DREDGED by Hampton Roads Leasing during the period 1 July – 1 September 2004 under Contract No. W91236-04-C-0039 dated 11 and 15 March 2004.

The information depicted on this map represents the results of surveys made on the date(s) indicated and can only be considered as indicating the general conditions existing at that time.

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
NORFOLK, VIRGINIA

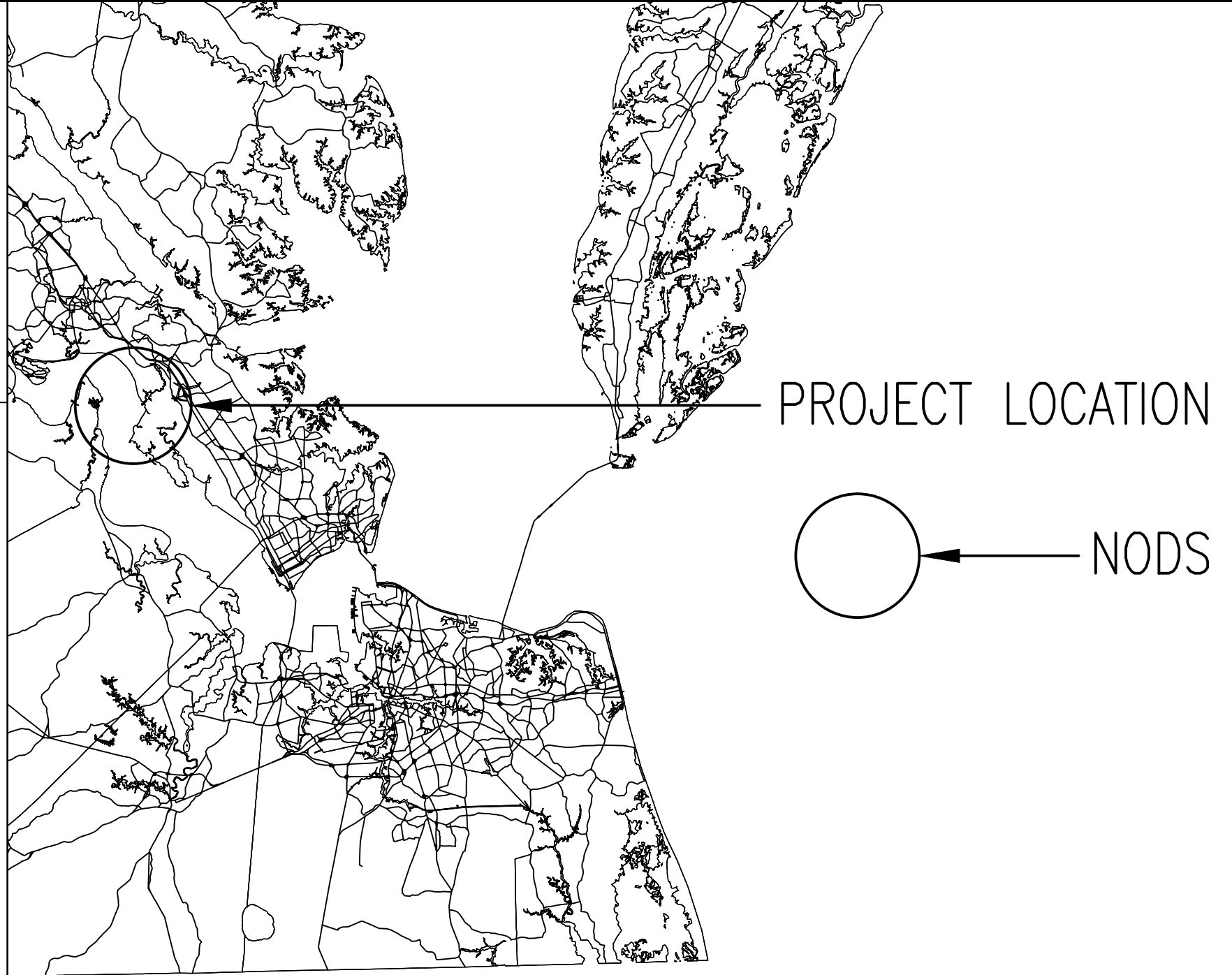
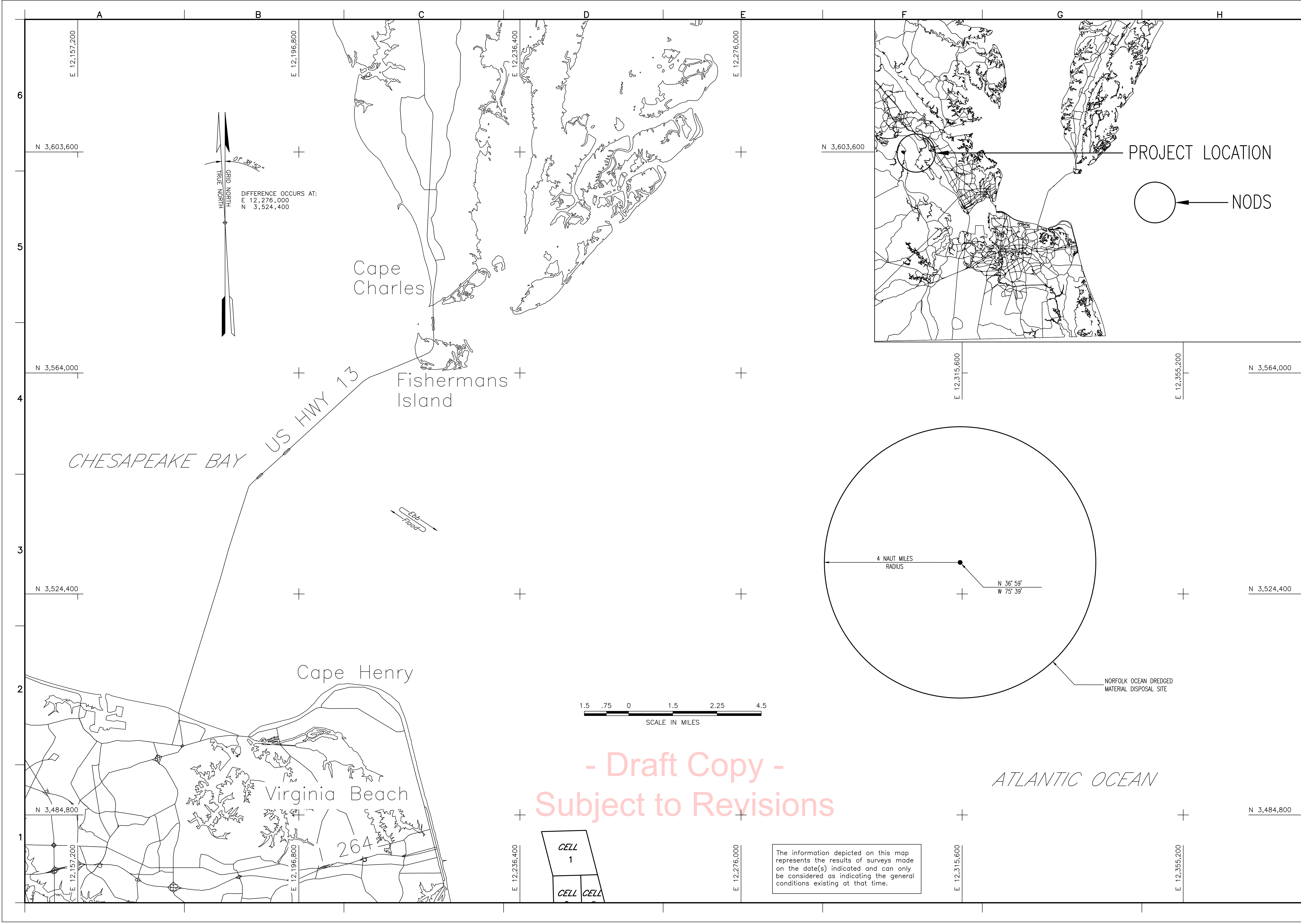
REVIEWED: _____ CHIEF, NAVIGATION SUPPORT AND SURVEY SECTION	APPROVED: _____ CHIEF, OPERATIONS BRANCH
SUBMITTED: _____ CHIEF, DESIGN SECTION	APPROVED: _____ CHIEF, TECHNICAL SERVICES DIVISION

[illegible]

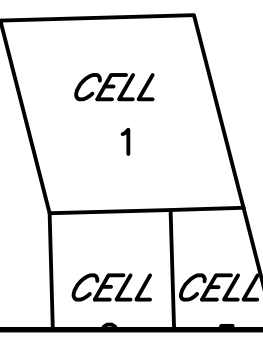
NORFOLK DISTRICT CORPS OF ENGINEERS NORFOLK, VIRGINIA	DESIGNED:	CHECKED:	DATE:
	DRAWN:	R.J.W.	13 AUG 09
	M.L.M.	SUBMITTED:	SCALE:
		S.J.P.	AS SHOWN
	PROJECT NO.:	NORFOLK DISTRICT FILE NO.:	
		H-29-16-41(2)	
	DRAWING NO.:		
SURVEYED BY: Waterway Surveys and Engineering, Ltd.			

SKIFFS CREEK
PROJECT CONDITION
SURVEY OF OCTOBER 2008
JAMES RIVER, VIRGINIA

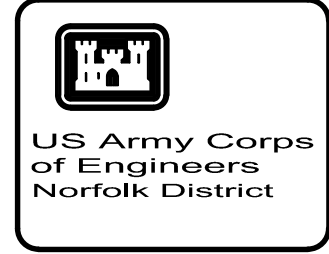
The information depicted on this map represents the results of surveys made on the date(s) indicated and can only be considered as indicating the general conditions existing at that time.



- Draft Copy -
Subject to Revisions



The information depicted on this map represents the results of surveys made on the date(s) indicated and can only be considered as indicating the general conditions existing at that time.



REV	DATE	DESCRIPTION	BY	APP.

DESIGNED: NORFOLK DISTRICT CORPS OF ENGINEERS NORFOLK, VIRGINIA	CHECKED: R.J.W.	DATE: 17 MAY 13
	DRAWN: J.K.W.	SUBMITTED: C.W.T.
	NORFOLK DISTRICT FILE NO.: SKC:2012-08-21.05(1)	
	DRAWING NO.: AMP. & M.A.W.	

SKIFFES CREEK
PROJECT CONDITION
SURVEY OF AUGUST 2012
JAMES RIVER, VIRGINIA



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

JUN 27 2013

Elizabeth G. Waring
Department of the Army
Norfolk District Corps of Engineers
Fort Norfolk 803 Front Street
Norfolk, VA 23510-1096
Attn: Operations Branch

RE: Skiffes Creek Dredging Modifications

Dear Ms. Waring,

Your May 29, 2013, correspondence requests our concurrence with your determination that the U.S. Army Corps of Engineer's modifications to the dredging of Skiffes Creek Federal Navigation Channel are not likely to adversely affect species listed by us under the Endangered Species Act (ESA) of 1973, as amended.

On April 17, 2012 we issued a letter to you consulting on the effects dredging within the Skiffes Creek Federal Navigation Channel, and we concurred with your determination that the proposed action was not likely to adversely affect several species of sea turtle including the Northwest Distinct Population Segment (DPS) of loggerhead sea turtles, as well as Kemp's ridley, leatherback, and green sea turtles. We also concurred that the action was not likely to adversely affect any of the five DPSs of Atlantic sturgeon.

Review of Reinitiation Triggers

Reinitiation of consultation is required and shall be requested by the Federal agency or by us where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (a) if the amount or extent of incidental take is exceeded; (b) a new species is listed or critical habitat designated that may be affected by the identified action; (c) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the consultation; or (d) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered.

We have reviewed the information provided by you to determine if any of these triggers for reinitiation have been met. As the April 2012 consultation was completed informally, there



was no incidental take statement, and no takes of any listed species have been observed to date. No new species or critical habitat has been designated that may be affected by the proposed action. Additionally, there is no new information regarding effects of the action that were not previously considered. While the proposed action will be modified to include mechanical dredging as well as disposal of dredged material at the Norfolk Ocean Disposal Site (NODS), the disposal of material at the NODS has previously been consulted on in the Chesapeake Bay Entrance Channel Biological Opinion (Opinion) on October 16, 2012. We concluded that any effects of the movement or disposal of dredged materials at the NODS are not likely to affect species listed by us under the ESA in that Opinion. We have no new information on the effects of cutterhead dredging or presence of listed species in Skiffes Creek that would cause us to reconsider the analysis conducted in the April, 2012 consultation. The modification to include mechanical dredging will not affect listed species in a manner or to an extent not previously considered, for the reasons explained below.

Effects of the Proposed Modifications

Entrainment in Mechanical Dredges

In our previous consultation of April 2012, we concurred with your determination that entrainment in dredge equipment would not be likely due to 1) the fact that Atlantic sturgeon and sea turtles are not likely to be foraging in the navigation channel of Skiffes Creek and 2) the proposed dredge machinery is not known to entrain sea turtles or Atlantic sturgeon.

Skiffes Creek is a small shallow waterway connected to the James River, located approximately 18 miles upstream from the confluence of the James River with Chesapeake Bay. Salinity levels drop drastically in the James River with upstream movement, and it is not likely that suitable prey would be available near the action area for sea turtles to forage on. It is therefore not likely that sea turtles would be present in the action area, as previously analyzed in the April, 2012, consultation. Additionally, the action area does not appear to be a major foraging area for Atlantic sturgeon adults and subadults (the only life stages likely to be present) due to the fact that the navigation channel is subject to shoaling, necessitating the need for dredging, and the benthic community likely comprises organisms adapted to disturbance (e.g. annelid worms, amphipods), which are not the preferred forage items of Atlantic sturgeon (*i.e.*, shellfish beds, seagrass beds, tidal flats, etc). As such, we previously concluded that Atlantic sturgeon were not likely to be present in the action area.

Furthermore, the dredge equipment used in the action (cutterhead dredges) has been previously demonstrated not to pose an entrainment risk to Atlantic sturgeon or sea turtles if one were to migrate through the action area en route to optimal foraging grounds. Clamshell mechanical dredging has been shown to similarly pose limited risk of entrainment, because of the manner in which the dredge is operated. Clamshell bucket dredges are slowly lowered through the water column and the dredge bucket is opened upon contact with the substrate. Both sea turtles and Atlantic sturgeon are thought to be able to avoid dredges that operate in this manner, especially since forage habitat is not present and neither species would be on the benthos. As such, the new modifications to the action will not produce any effects that have not previously been assessed in the April, 2012, consultation.

Water Quality Effects

Dredging may cause a temporary increase in suspended sediment in the dredge area. As we previously concurred, any sediment plume is expected to be small and suspended sediment is expected to settle out of the water column within a few hours. Turbidity levels associated with hydraulic dredging activities produce sediment plumes typically ranging from 11.5 to 282.0 mg/L (ACOE 2007, Anchor Environmental 2003). Turbidity levels associated with mechanical dredges typically range from 26-350mg/L (ACOE 2007; Anchor Environmental, 2003) with the highest levels detected adjacent to the dredge bucket and concentrations decreasing with greater distance from the dredge (see ACOE, 2007).

While there have been no directed studies on the effects of total suspended solids (TSS) on Atlantic sturgeon, Atlantic sturgeon sub-adults and adults are often documented in turbid water and Dadswell (1984) reports that sturgeon are more active under lowered light conditions, such as those in turbid waters. As such, Atlantic sturgeon are assumed to be as least as tolerant to suspended sediment as other estuarine fish such as striped bass. The TSS levels expected for dredging (for either type of dredge equipment) are below those shown to have an adverse effect on fish (580.0 mg/L for the most sensitive species, with 1,000.0 mg/L more typical; see summary of scientific literature in Burton 1993) and benthic communities (390.0 mg/L (EPA 1986)). TSS is most likely to affect sea turtles if a plume causes a barrier to normal behaviors or if sediment settles on the bottom affecting sea turtle prey, as these species are not affected directly by sediment in the water because they breathe air. Preferred foraging habitat for either sea turtles or Atlantic sturgeon does not occur within the action area. As such, the new modifications to the action will not produce any effects that have not previously been assessed in the April, 2012, consultation.

Based on this analysis of the re-initiation triggers, NMFS has determined that reinitiation of consultation is not necessary because the modifications to the action will not produce effects that have not already been consulted on in the previous consultation. As such, the conclusions reached in our April 17, 2012, letter remain valid and no further consultation is necessary at this time. Should you have any questions regarding this letter, please contact Chris Vaccaro of my staff, at (978)281-9167 or by e-mail (Christine.Vaccaro@noaa.gov).

Sincerely,



John K. Bullard
Regional Administrator

EC: Vaccaro, F/NER3
Nadal, ACOE
O'Brien, F/NER4



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

OCT 16 2012

Mark T. Mansfield, Chief
Planning and Policy Branch
Department of the Army
Norfolk District, Corps of Engineers
Fort Norfolk, 803 Front Street
Norfolk, Virginia 23510-1096

Elizabeth Waring, Chief
Operations Branch
Department of the Army
Norfolk District, Corps of Engineers
Fort Norfolk, 803 Front Street
Norfolk, Virginia 23510-1096

Dear Mr. Mansfield and Ms. Waring,

Please find enclosed a copy of the Biological Opinion on the effects of the following projects:

- Cape Henry Channel;
- York Spit Channel;
- Rappahannock Shoal;
- York River Entrance Channel;
- Sandbridge Beach Nourishment and Hurricane Protection Project;
- Virginia Beach Hurricane Protection Project;
- Thimble Shoals Channel;
- Atlantic Ocean Channel;
- Norfolk Harbor Channels;
- Craney Island Eastward Expansion; and,
- Dredged Material Disposal Areas: Dam Neck Ocean Disposal Site, Wolf Trap Alternate Placement Site, Rappahannock Shoal Deep Alternate Open Water Site, Craney Island Dredged Material Management Area, and, Norfolk Ocean Dredged Material Disposal Site.

This work will be carried out by the U.S. Army Corps of Engineers (USACE) or their



contractors. Other Federal agencies with a role in authorizing, funding or carrying out the proposed actions are the Bureau of Ocean Energy Management, the U.S. Navy, and the U.S. Environmental Protection Agency (EPA). The USACE, Norfolk District, is the lead Federal agency for this consultation. In this Opinion, we conclude that the proposed actions are likely to adversely affect, but not likely to jeopardize the continued existence of the Northwest Atlantic Distinct Population Segment (DPS) of loggerhead sea turtles, or Kemp's ridley, green or leatherback sea turtles or the threatened Gulf of Maine DPS of Atlantic sturgeon or the endangered New York Bight, Chesapeake Bay, Carolina or South Atlantic DPSs of Atlantic sturgeon. We also conclude that the proposed actions may affect but are not likely to adversely affect shortnose sturgeon, hawksbill sea turtles, or North Atlantic right, humpback or fin whales.

This Opinion replaces the following Opinions which are hereby withdrawn: Thimble Shoals and Atlantic Ocean Channel (April 25, 2002), Virginia Beach Hurricane Protection Project – Thimble Shoals Surround and Atlantic Ocean Channel Borrow Area (December 2, 2005), Cape Henry, York Spit, York River Entrance Channel and Rappahanock Shoals (July 24, 2003), and Sandbridge Beach (April 2, 1993, amended on August 20, 2001).

Our Opinion includes an Incidental Take Statement (ITS). Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. "Otherwise lawful activities" are those actions that meet all State and Federal legal requirements, including any state endangered species laws or regulations, except for the prohibition against taking in ESA Section 9. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited under the ESA provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement. The ITS exempts the take of sea turtles due to entrainment in hopper dredges and capture in relocation trawls and exempts the take of Atlantic sturgeon due to entrainment in hopper and cutterhead dredges, capture in relocation trawls and capture in mechanical dredges. The take levels provided in the ITS cover the entire 50-year duration of the proposed action.

The ITS specifies reasonable and prudent measures necessary to minimize and monitor take of Atlantic sturgeon and listed sea turtles. The measures described in the ITS are non-discretionary and must be implemented for the exemption in section 7(o)(2) to apply. USACE, as the lead Federal agency, has a continuing duty to regulate the activity covered by this ITS. If you (1) fail to assume and implement the terms and conditions or (2) fails to require your contractors to adhere to the terms and conditions of the ITS through enforceable terms that are added to permits and/or contracts as appropriate, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, you must report the progress of the action and its impact on the species to us as specified in the Incidental Take Statement [50 CFR §402.14(i)(3)] (See U.S. Fish and Wildlife Service and National Marine Fisheries Service's Joint Endangered Species Act Section 7 Consultation Handbook (1998) at 4-49).

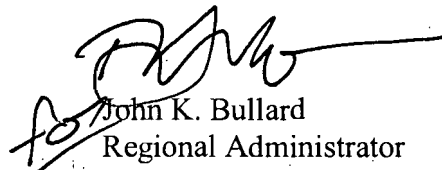
This Opinion concludes formal consultation for the proposed action as currently defined. Reinitiation of this consultation is required if: (1) the amount or extent of taking specified in the ITS is exceeded; (2) new information reveals effects of these actions that may affect listed

species or critical habitat in a manner or to an extent not previously considered; (3) project activities are subsequently modified in a manner that causes an effect to the listed species that was not considered in this Opinion; or (4) a new species is listed or critical habitat designated that may be affected by the identified action.

Depending on the circumstances associated with the cause for reinitiation, it may not be necessary to reinitiate consultation for all of the actions considered here. For example, if a new species is listed that may be affected by dredging activities, it would likely be necessary to reinitiate consultation on all of the activities considered here. However, if the cause for reinitiation has effects that are limited to one action (for example, a change in dredge type, dredge volume or disposal area), reinitiation of consultation on only that action would be necessary. We expect that determinations about the scope of any future reinitiation(s) will be made in cooperation between the USACE and us.

Should you have any questions regarding this Opinion please contact Julie Crocker of my staff at (978) 282-8480 or by e-mail (Julie.Crocker@noaa.gov). I look forward to continuing to work with you and your staff on issues related to listed species and Chesapeake Bay dredging projects.

Sincerely,



John K. Bullard
Regional Administrator

cc: Crocker - F/NER3
O'Brien - F/NER4
Underwood, Pruhs - ACOE NAO
BOEM
EPA
Navy

File Code: Sec 7 ACOE Norfolk - Chesapeake Bay entrance 2012
PCTS: F/NER/2012/01586

APPENDIX F
SEA PUBLIC AND AGENCY
COORDINATION (APRIL 2014)



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

April 29, 2014

Operations Branch

Ms Ellie L. Irons
Virginia Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street
Richmond, Virginia 23619

SUBJECT: Skiffes Creek Federal Navigation Channel Maintenance Dredging, Joint Base Langley-Eustis, Fort Eustis Draft Supplemental Environmental Assessment

Dear Ms Irons:

This letter is being transmitted by the U. S. Army Corps of Engineers (USACE) as the agent for 7th Transportation Brigade (Expeditionary) at the U.S. Army Transportation Center, Joint Base Langley-Eustis, Fort Eustis (JBLE-Fort Eustis). Enclosed with this letter are three hardcopies of the draft Supplemental Environmental Assessment for the Skiffes Creek Channel Federal Navigation Channel maintenance dredging, located in Newport News, VA on JBLE-Fort Eustis. An electronic copy has been uploaded to VITashare and the Norfolk District U.S. Army Corps of Engineers website (<http://www.nao.usace.army.mil/>).

The Proposed Action involves the transport of dredged material from Skiffes Creek Channel for the purpose of placement in ocean waters at the Norfolk Ocean Disposal Site (NODS).

To assist in the evaluation of the project, please submit any comments you may have by May 30, 2014. Please address all comments to Mr Robert Pruhs, Norfolk District, U.S. Army Corps of Engineers, 803 Front Street, Norfolk, VA 23510 or email to Robert.S.Pruhs@usace.army.mil.

Should you have any questions or require further information on this submittal, please contact Robert Pruhs or my staff via email or 757-201-7130. Thank you for your assistance.

Sincerely,

Elizabeth G. Waring
Elizabeth G. Waring
Chief, Operations Branch



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

April 29, 2014

Operations Branch

SUBJECT: Skiffes Creek Federal Navigation Channel, Maintenance Dredging, Draft Supplemental Environmental Assessment

DISTRIBUTION LIST:

This letter is being transmitted by the U. S. Army Corps of Engineers (USACE) as the agent for the 7th Transportation Brigade (Expeditionary) at the U.S. Army Transportation Center, Joint Base Langley-Eustis, Fort Eustis (JBLE-Fort Eustis). Enclosed with this letter is a compact disc of the draft Supplemental Environmental Assessment for the Skiffes Creek Federal Navigation Channel, located in Newport News, VA on JBLE-Fort Eustis. An electronic copy has been uploaded to the Norfolk District U.S. Army Corps of Engineers website (<http://www.nao.usace.army.mil/>).

The Proposed Action involves maintenance dredging activities and the transport of dredged material for the purposes of ocean placement at the Norfolk Ocean Disposal Site (NODS).

To assist in the evaluation of the project, please submit any comments you may have by May 30, 2014. Please address all comments to Mr Robert Pruhs, Norfolk District, U.S. Army Corps of Engineers, 803 Front Street, Norfolk, VA 23510 or email to Robert.S.Pruhs@usace.army.mil.

Should you have any questions or require further information on this submittal, please contact Robert Pruhs of my staff via email or 757-201-7130. Thank you for your assistance.

Sincerely,

A handwritten signature in cursive script, reading "Elizabeth G. Waring".

Elizabeth G. Waring
Chief, Operations Branch

Enclosure

Office of the Mayor
City of Newport News, Virginia
City Hall
2400 Washington Avenue
Newport News, VA 23607

Commander, U.S. Coast Guard
Portsmouth Federal Building
431 Crawford Street
Portsmouth, VA 23704

Mr. Gene Crabtree
USDA-NRCS
203 Wimbledon Lane
Smithfield, VA 23430

NEPA Programs
U.S. Environmental Protection Agency,
Region III
1650 Arch Street
Philadelphia, PA 19103

Regional Director
U.S. Fish and Wildlife Service
300 West Gate Center Drive
Hadley, MA 01035

Ms. Cindy Schulz
Ecological Services
U.S. Fish and Wildlife Service
6669 Short Lane
Gloucester, VA 23061

Mr. Dave O'Brien
Habitat Conservation Division, NOAA
PO Box 1346
7580 Spencer Road
Gloucester Point, VA 23062

Regional Director, Northeast Region
National Marine Fisheries Service,
NOAA
U.S. Department of Commerce
1 Blackburn Drive
Gloucester, MA 09130

Mr. Lee Hill
VA Department of Conservation and
Recreation
203 Governor Street, Suite 302
Richmond, VA 23219

Ms Ellie L. Irons
VA Department of Environmental
Quality
Office of Environmental Impact Review
629 East Main Street
Richmond, VA 23219

Mr. Bert Parolari
VA Department of Environmental
Quality-TRO
5636 Southern Boulevard
Virginia Beach, VA 23462

Mr. Raymond T. Fernald
Environmental Services Section
VA Department of Game & Inland
Fisheries
4010 West Broad Street
Richmond, VA 23230

VA Department of Health
PO Box 2448
Richmond, VA 23218

Ms Ethel Eaton
VA Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

Ms. Julie Bradshaw
VA Institute of Marine Science
P.O. Box 1345
Gloucester Point, VA 23062

Mr. Tony Watkinson
Habitat Management Division
VA Marine Resources Commission
2600 Washington Avenue, Third Floor
Newport News, VA 23607



Public Notice

U.S. Army Corps of Engineers, Norfolk District

April 30, 2014

CENAO-WR-OT

PUBLIC NOTICE

The USACE-Norfolk District has prepared a draft Supplemental Environmental Assessment on behalf of the 7th Transportation Brigade (Expeditionary), Joint Base Langley Eustis (JBLE) to assess the potential impacts for work described below:

LOCATION OF THE PROPOSED WORK: The Skiffes Creek Channel is located in the James River at Fort Eustis in Newport News, Virginia.

PROPOSED WORK AND PURPOSE: The purpose of this project is maintenance dredging of the Skiffes Creek Channel to provide safe navigation for vessels accessing the Third Port facility located at Fort Eustis. The Proposed Action is the transport of dredged material for the purpose of ocean placement at the Norfolk Ocean Disposal Site (NODS) located in the Atlantic Ocean approximately 16-miles east of Cape Henry. The project includes maintenance activities at the Fort Eustis Dredged Material Management Area (FEDMMA) such as control of common reed.

SCOPE OF THE ENVIRONMENTAL ASSESSMENT

Under the requirements of Section 102 of the National Environmental Policy Act (NEPA), this proposed project constitutes a major Federal action, and a Supplemental Environmental Assessment to the 2003 Environmental Assessment is therefore required. This SEA has been prepared pursuant to NEPA and its implementing regulations.

The purpose of this Supplemental Environmental Assessment is to evaluate the direct and indirect impacts associated with the transport and placement of dredged material at the NODS. This document identifies and evaluates the potential environmental effects associated with the Proposed Action.

The draft Supplemental Environmental Assessment is being coordinated with the following agencies:

- JBLE-Fort Eustis
- City of Newport News
- U.S. Army Corps of Engineers (USACE)
- U.S. Coast Guard (USCG)
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)
- U.S. Environmental Protection Agency (EPA)
- U.S. Fish and Wildlife Agency (USFWS)

- National Oceanic and Atmospheric Administration (NOAA)
- NOAA - National Marine Fisheries Service (NMFS)
- Virginia Department of Conservation and Recreation (VDCR)
- Virginia Department of Environmental Quality (VDEQ)
- Virginia Department of Game and Inland Fisheries (VDGIF)
- Virginia Department of Historic Resources (VDHR)
- Virginia Institute of Marine Science (VIMS)
- Virginia Marine Resources Commission (VMRC)

COMMENT PERIOD: Comments on this draft Supplemental Environmental Assessment should be by email (Robert.S.Pruhs@usace.army.mil) or in writing, addressed to the Norfolk District, Corps of Engineers (ATTN: CENAO-WR-OT (Pruhs)), 803 Front Street, Norfolk, Virginia 23510-1096, and should be received by the close of business on May 30, 2014.

PRIVACY & CONFIDENTIALITY: Comments and information, including the identity of the submitter, submitted in response to this Public Notice may be disclosed, reproduced, and distributed at the discretion of the U.S. Army Corps of Engineers. Information that is submitted in connection with this Public Notice cannot be maintained as confidential by the U.S. Army Corps of Engineers. Submissions should not include any information that the submitter seeks to preserve as confidential.

If you have any questions about this project, contact Robert Pruhs at Robert.S.Pruhs@usace.army.mil or call 757-201-7130.



NORFOLK DISTRICT

Search Norfolk District

[ABOUT](#) [BUSINESS WITH US](#) [MISSIONS](#) [CAREERS](#) [MEDIA](#) [LIBRARY](#) [CONTACT](#) [LOCATIONS](#)

[HOME](#) > [MEDIA](#) > PUBLIC NOTICES

Public Notices by Year

2014

2013

2012

[+](#) [SHARE](#) [f](#) [t](#) [e](#) [...](#) [Email](#) [Print](#)

NAO-Skiffes Creek Channel Maintenance Dredging_SEA_PN 2014

Posted: 4/30/2014

Expiration date: 5/30/2014

The USACE-Norfolk District has prepared a draft Supplemental Environmental Assessment on behalf of the 7th Transportation Brigade (Expeditionary), Joint Base Langley-Eustis (JBLE) to assess the potential impacts for work described below:

LOCATION OF THE PROPOSED WORK: The Skiffes Creek Channel is located in the James River at Fort Eustis in Newport News, Va.

PROPOSED WORK AND PURPOSE: The purpose of this project is maintenance dredging of the Skiffes Creek Channel to provide safe navigation for vessels accessing the Third Port facility, located at Fort Eustis. The Proposed Action is the transport of dredged material for the purpose of ocean placement at the Norfolk Ocean Disposal Site (NODS), located in the Atlantic Ocean approximately 16 miles east of Cape Henry.

The project includes maintenance activities at the Fort Eustis Dredged Material Management Area (FEDMMA), such as control of common reed.

SCOPE OF THE ENVIRONMENTAL ASSESSMENT: Under the requirements of Section 102 of the National Environmental Policy Act (NEPA), this proposed project constitutes a major federal action, and a Supplemental Environmental Assessment to the 2003 Environmental Assessment is therefore required. This SEA has been prepared pursuant to NEPA and its implementing regulations.

The purpose of this Supplemental Environmental Assessment is to evaluate the direct and indirect impacts associated with the transport and placement of dredged material at the NODS. This document identifies and evaluates the potential environmental effects associated with the Proposed Action.

The draft Supplemental Environmental Assessment is being coordinated with the following agencies:

- JBLE-Fort Eustis
- City of Newport News
- U.S. Army Corps of Engineers (USACE)
- U.S. Coast Guard (USCG)
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)
- U.S. Environmental Protection Agency (EPA)
- U.S. Fish and Wildlife Agency (USFWS)
- National Oceanic and Atmospheric Administration (NOAA)
- NOAA - National Marine Fisheries Service (NMFS)
- Virginia Department of Conservation and Recreation (VDCR)
- Virginia Department of Environmental Quality (VDEQ)
- Virginia Department of Game and Inland Fisheries (VDGIF)
- Virginia Department of Historic Resources (VDHR)
- Virginia Institute of Marine Science (VIMS)
- Virginia Marine Resources Commission (VMRC)

COMMENT PERIOD: Comments on this draft Supplemental Environmental Assessment should be by email (Robert.S.Pruhs@usace.army.mil) or in writing, addressed to the Norfolk District, Army Corps of Engineers (ATTN: CENAO-WR-OT (Pruhs)), 803 Front Street, Norfolk, Va. 23510-1096, and should be received by the close of business on May 30, 2014.

PRIVACY & CONFIDENTIALITY: Comments and information, including the identity of the submitter, submitted in response to this public notice may be disclosed, reproduced, and distributed at the discretion of the U.S. Army Corps of Engineers. Information that is submitted in connection with this public notice cannot

ATTACHMENTS

- ▶ Skiffes Creek Channel Draft SEA
- ▶ Appendix-A Permits
- ▶ Appendix-B MPRSA Section 103 Evaluation
- ▶ Appendix-C 2003 Environmental Assessment
- ▶ Appendix-D Coastal Consistency Determination
- ▶ Appendix-E Consultation Letters

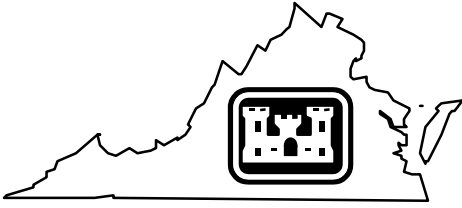
be maintained as confidential by the U.S. Army Corps of Engineers. Submissions should not include any information that the submitter seeks to preserve as confidential.

If you have any questions about this project, contact Robert Pruhs at Robert.S.Pruhs@usace.army.mil or call 757-201-7130.

[dredged material](#) [environmental](#) [Fort Eustis](#) [James River](#) [JBLE](#) [Joint Base Langley Eustis](#) [maintenance dredging](#) [NEPA](#) [Norfolk District](#) [SEA](#) [Skiffes Creek Channel](#) [Supplemental Environmental Assessment](#) [US Army Corps of Engineers](#)



- | | | |
|---|--|--------------------------|
| Accessibility | Link Disclaimer | Site Map |
| Contact Us | No Fear Act | USA.gov |
| FOIA | Privacy & Security | |
| Information Quality Act | Public Inquiries | |



Public Notice

U.S. Army Corps of Engineers, Norfolk District

MARCH 24, 2014

CENAO-WR-R
NAO-2003-3339

PUBLIC NOTICE

The District Commander has received a permit application for work described below:

APPLICANT

Fort Eustis, Third Port
705 Washington Blvd
Fort Eustis, VA 23604

WATERWAY AND LOCATION OF THE PROPOSED WORK: Fort Eustis is authorized to maintenance dredge the Skiffes Creek approach channel and Third Port harbor, with placement of the dredged material at various upland sites. This public notice is to evaluate the applicant's request for an additional authorization to use ocean disposal for the dredged material.

PROPOSED WORK AND PURPOSE: The applicant proposes to transport and place approximately 250,000 cubic yards of dredged material from the Fort Eustis approach channel and harbor to the Norfolk Ocean Disposal Site (NODS). The NODS is located in the Atlantic Ocean approximately 17 miles east of Cape Henry. The center point coordinate of the NODS is latitude 36°59'00" North and longitude 75°39'00" West. The site is circular with a radius of 4 nautical miles and has an area of approximately 50 square nautical miles. The NODS has been formerly designated for the placement of suitable dredged materials in 40 Code of Federal Regulations (CFR) Part 228.1 by the EPA Administrator pursuant to section 102(c) of the Marine Protection, Research, and Sanctuaries Act (MPRSA).

AUTHORITY: A Section 103 permit for ocean transport and placement is required in accordance with part 227 of the Marine Protection, Research, and Sanctuaries Act (MPRSA).

FEDERAL EVALUATION OF APPLICATION: The decision whether to issue a permit will be based on the suitability of the dredged materials for placement at the Norfolk Ocean Disposal Placement Site (NODS).

Applications and authorizations for Dredged Material Permits under Section 103 of the Act for the transportation of dredged material for the purpose of dumping it in ocean waters will be evaluated by the U.S. Army Corps of Engineers in accordance with the criteria set forth in part 227 and processed in accordance with 33 CFR 209.120 with special attention to § 209.120(g)(17) (Discharge of Dredged or Fill Material in Navigable

Waters or Dumping of Dredged Material in Ocean Waters) and 33 CFR 209.145, now renumbered as 33 CFR 320 to 324, and 33 CFR 335 for Civil Works projects.

This public notice satisfies the requirements of Section 225.2 of the MPRSA. Dredged materials proposed for transport for the purpose of discharge in open waters must be evaluated and permitted by the U.S. Army Corps of Engineers in accordance with part 227 of MPRSA and processed in accordance with 33 CFR 320-324.

The NODS has previously been used by the U.S. Navy in August 1993. Approximately 51,000 cubic yards of dredged material from the Naval Supply Center Cheatham Annex and 475,000 cubic yards of dredged material from the Naval Weapons Station Yorktown were placed at the site. The Mid-Town Tunnel Project commenced dredged material placement operations at NODS in October of 2013 and is expected to place approximately 2 million cubic yards at the site over an estimated 18-month period. Effects from the authorized discharges that have been made in the placement area have been minimal and consistent with the discharge alluvium.

Sediments proposed for maintenance dredging to provide safe navigation for vessels utilizing the channel consists primarily of alluvium material. Grain size of the dredged material is predominantly silt and clay material with a small fraction of embedded sands. The dredged material proposed for placement at NODS does not meet the testing exclusionary criteria set forth under 40 CFR 227.13(b). Subsequent dredged material testing detected the presence of ammonia as nitrogen, metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), chlorinated pesticides, and dioxins/furans at the site. Dredged material was tested for liquid phase, suspended particulate phase, and solid phases using criteria and procedures developed by the Administrator of the U.S. Environmental Protection Agency (EPA) in accordance with 40 CFR 227.13(c) and 227.32. Evaluation of the liquid phase has determined the material complies with the Limiting Permissible Concentration (LPC) and is in compliance with 40 CFR 227.13(c)(2) and 227.27(a)(1). Evaluation of the liquid and suspended particulate phase has determined the material complies with the LPC and is in compliance with 40 CFR 22.13(c)(3) and 227.27(b). Evaluation of the solid phase has determined the material complies with the LPC and is in compliance with 40 CFR 227.13(c)(3) and 227.27(b). Accordingly, the proposed dredged material from the Skiffe's Creek Channel meets the Ocean Disposal Criteria (40 CFR 227).

The National Marine Fisheries Service (NMFS) provided a biological opinion dated October 16, 2012 (F/NER/2012/01586) regarding use of the NODS.

"Because any effects to whales are extremely unlikely to occur, all effects to whales are discountable. As such, we have determined that the proposed action is not likely to adversely affect right, humpback or fin whales. These species will not be considered further in this Opinion."

"For purposes of this consultation, we consider that sediment that is suitable for ocean disposal would not be toxic to marine life and would not be likely to cause adverse effects to sea turtles, Atlantic sturgeon or their prey. Because the material to be disposed will be tested to ensure it is not acutely toxic and will not increase the risk of bioaccumulation of toxins or contaminants in any marine

species, effects to sea turtles and Atlantic sturgeon will be insignificant and discountable.”

COMMENT PERIOD: Comments on this project should be made in writing, addressed to the Norfolk District, Corps of Engineers (ATTN: CENAO-WR-R (Evans)), 803 Front Street, Norfolk, Virginia 23510-1096, and should be received by the close of business on April 25, 2014.

PRIVACY & CONFIDENTIALITY: Comments and information, including the identity of the submitter, submitted in response to this Public Notice may be disclosed, reproduced, and distributed at the discretion of the U.S. Army Corps of Engineers. Information that is submitted in connection with this Public Notice cannot be maintained as confidential by the U.S. Army Corps of Engineers. Submissions should not include any information that the submitter seeks to preserve as confidential.

If you have any questions about this project or the permit process, contact John Evans at john.d.evans@usace.army.mil or call 757-201-7794.

FOR THE DISTRICT COMMANDER:

John Evans
Western Virginia Regulatory Section



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 629 East Main Street, Richmond, Virginia 23219

Mailing address: P.O. Box 1105, Richmond, Virginia 23210

Fax: 804-698-2019 • *TDD:* (804) 698-4021

www.deq.virginia.gov

Melby Joseph Ward
Secretary of Natural Resources

David R. Fryer
Director

PH: (804) 698-4021
TDD: (804) 698-4021

May 29, 2014

Ms. Elizabeth G. Waring
Chief, Operations Branch
U.S. Army Corps of Engineers, Norfolk District
803 Front Street (Fort Norfolk)
Norfolk, Virginia 23510

RE: Draft Supplemental Environmental Assessment and Federal Consistency
Determination for Skiffas Creek Federal Navigation Channel, Maintenance
Dredging (DEQ 14-077F)

Dear Ms. Waring:

The Commonwealth of Virginia has completed its review of the above-referenced Draft Supplemental Environmental Assessment (Draft SEA) and Federal Consistency Determination (FCD). The Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of federal environmental documents prepared pursuant to the National Environmental Policy Act and responding to appropriate federal officials on behalf of the Commonwealth. DEQ also coordinates Virginia's reviews of federal consistency determinations prepared pursuant to the Coastal Zone Management Act. The following state agencies and regional planning district commission joined in this review:

Department of Environmental Quality
Department of Game and Inland Fisheries
Department of Conservation and Recreation
Department of Historic Resources
Virginia Marine Resources Commission
Hampton Roads Planning District Commission

In addition, the following agency, institution, and locality were invited to comment:

Department of Agriculture and Consumer Services
Virginia Institute of Marine Science
City of Newport News

DESCRIPTION OF PROPOSED ACTION

The Army Corps of Engineers, as agent for the 7th Transportation Brigade at the U.S. Army Transportation Center at Joint Base Langley-Eustis at Fort Eustis (JBLE-Fort Eustis), has submitted a Draft Supplemental Environmental Assessment (Draft SEA), which includes a federal consistency determination (FCD), for a maintenance dredging project at Skiffes Creek and transporting dredged material for the purpose of ocean placement at the Norfolk Ocean Disposal Site (NODS). This Draft SEA and FCD supplement an EA prepared in 2003 which covered a project of restoring navigation to Skiffes Creek. Another EA was prepared in 2012 to take account of several changes. These included:

- Listing of the Atlantic sturgeon as a federal endangered species;
- De-listing of the bald eagle as an endangered species (the bald eagle is now afforded special protection under the Bald and Golden Eagle Protection Act, and a newly active nest is found near the project area);
- Major efforts by Fort Eustis to control the common reed (*Phragmites Australia*), including efforts in part of the project area;
- Alignment of Fort Eustis with the Air Force and the need to follow Air Force policies; and
- The fact that the Fort Eustis Dredged Material Management Area is nearing the end of its useful life.

(Draft SEA, page 5, "Executive Summary" heading.)

DEQ coordinated Virginia's review of the 2012 EA, responding under DEQ 12-141F (comments mailed August 28, 2012).

The proposed action, addressed in the new Draft SEA and FCD, involves maintenance dredging of the Skiffes Creek navigation channel and the transport of dredged material for ocean placement at the Norfolk Ocean Disposal Site. Dredged material not suitable for ocean placement will continue to be placed in the Fort Eustis Dredged Material Management Area (FEDMMA). Once that area reaches its limit, dredged material will be placed in appropriate upland placement sites (Draft SEA, page 9, sections 2.0 through 2.2; see also FCD, page 1, "Proposed Federal Agency Activity" heading (on-line file page 320)).

The Draft SEA also contemplates application of herbicides in the FEDMMA by certified applicators following label instructions (Draft SEA, page 9, section 2.1.2).

Alternatives considered include the following:

- No action, which would not accomplish the desired results (Draft SEA, page 17, section 3.1);

- Use of the Craney Island Dredged Material Management Area (CIDMMA), which would not be viable, because Skiffes Creek is outside the Congressionally mandated service area for the CIDMMA (Draft SEA, page 18, section 3.2);
- Overboard placement areas in the James River, which are considered not viable because of area limitations imposed by the Marine Resources Commission and the presence and density of shellfish resources (Draft SEA, page 18, section 3.3), and
- Beneficial uses of dredged material in near-shore areas surrounding the Skiffes Creek Channel, which may conflict with other permitted uses and, in any case, are subject to natural constraints because of the fine-grained material (page 18, section 3.4).

Finally, the Draft SEA focuses specifically on potential impacts relating to the placement of dredged material at the Norfolk Ocean Disposal Site. Issues include Atlantic sturgeon, bald eagles, and initiatives to control invasive grass (Draft SEA, page 19, section 4.1).

ENVIRONMENTAL IMPACTS AND MITIGATION

1. Wildlife Resources.

1(a) Agency Jurisdiction. The Department of Game and Inland Fisheries, as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state- or federally-listed endangered or threatened species, but excluding listed insects (Virginia Code Title 29.1). The DGIF is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S.C. sections 661 *et seq.*) and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce, or compensate for those impacts.

1(b) Findings; Analysis. DGIF documents bald eagle nests from the project area. The project site appears to be located within the James River Summer and Winter Bald Eagle Concentration Zone. Significant habitat alteration, location of water-dependent facilities within concentration zones, or other recreational and commercial activities may adversely affect eagles.

See also "Federal Consistency ...," "Analysis of Enforceable Policies" sub-heading, item 2(b), below.

1(c) Recommendations.

1(c)(i) Bald Eagle Protection. The Corps should ensure that the project is implemented consistently with state and federal guidelines for protection of bald eagles.

1(c)(ii) Coordination. See "Regulatory and Coordination Needs," item 3(a), below.

2. Natural Heritage Resources.

2(a) Agency Jurisdictions; Definition.

2(a)(1) Department of Conservation and Recreation. The mission of the Virginia Department of Conservation and Recreation (DCR) is to conserve Virginia's natural and recreational resources. The DCR-Natural Heritage Program's (DCR-DNH) mission is conserving Virginia's biodiversity through inventory, protection, and stewardship. The Virginia Natural Area Preserves Act (Virginia Code 10.1-209 through 10.1-217) codifies DCR's powers and duties related to statewide biological inventory, maintaining a statewide database for conservation planning and project review, land protection for the conservation of biodiversity, and the protection and ecological management of natural heritage resources.

2(a)(2) Department of Agriculture and Consumer Services. The Endangered Plant and Insect Species Act of 1979, Virginia Code Chapter 39, sections 3.1-102 through 33.1-1030, as amended, authorizes the Virginia Department of Agriculture and Consumer Services (VDACS) to conserve, protect and manage endangered species of plants and insects. Staff members of the VDACS Virginia Endangered Plant and Insect Species Program cooperate with the U.S. Fish and Wildlife Service, DCR-DNH and other agencies and organizations on the recovery, protection or conservation of listed threatened or endangered species and designated plant and insect species that are rare throughout their worldwide ranges. In instances where recovery plans, developed by the U.S. Fish and Wildlife Service, are available, adherence to the order and tasks outlined in the plans are followed to the extent possible.

2(a)(3) Definition. "Natural heritage resources" are defined as the habitats of rare, threatened, and endangered species, significant natural communities, geologic sites, and other natural features.

2(b) Findings. The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the maps in the Draft SEA. Biotics documents the presence of natural heritage resources in the project area. However, due to the scope of the activity and the distance to the resources, DCR does not anticipate that this project will adversely affect these natural heritage resources.

2(c) Natural Area Preserves. According to DCR, there are no state Natural Area Preserves under DCR's jurisdiction in the vicinity of the project.

2(d) Additional Information. The Virginia Department of Game and Inland Fisheries (DGIIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not

documented in this letter. The DGIF database may be accessed from <http://vatwis.org/twis/>. See "Regulatory and Coordination Needs," item 1(a)(i), below.

Because new and additional information is continually added to the DCR's Biotics Data System, the Corps is requested to re-submit project information and maps for an update on the above findings (items 2(b) and 2(c)) if the scope of the project changes and/or six months pass before the information is used. See "Regulatory and Coordination Needs," item 1(a)(ii), below.

3. Historic Structures and Archaeological Resources.

3(a) Agency Jurisdiction. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources under its jurisdiction. DHR, as the designated State's Historic Preservation Office (SHPO), ensures that federal actions comply with Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, and its implementing regulation at 38 CFR Part 800. The NHPA requires federal agencies to consider the effects of federal projects on properties that are listed or eligible for listing on the National Register of Historic Places. Section 106 also applies if there are any federal involvements, such as licenses, permits, approvals or funding.

3(b) Comments. Pursuant to section 106, the Department of the Army has been in direct consultation with the Department of the Air Force, Joint Base Langley-Fort Eustis and its agents regarding this dredging and disposal project. The parties have reached consensus that the project will result in no adverse effect on historic properties.

4. Regional and Local Concerns.

4(a) Jurisdiction; Planning District Commissions. In accordance with Virginia Code section 15.2-4207, planning district commissions encourage and facilitate local government cooperation and state-local cooperation in addressing, on a regional basis, problems of greater than local significance. This cooperation is intended to facilitate the recognition and analysis of regional opportunities and take account of regional influences in planning and implementing public policies and services. Planning district commissions promote the orderly and efficient development of the physical, social, and economic elements of the districts by planning, and encouraging and assisting localities to plan, for the future.

4(b) Comments.

4(b)(1) Hampton Roads Planning District Commission. The Hampton Roads Planning District Commission indicates that the proposed project appears consistent with local and regional plans and policies. The Commission consulted the staff of the City of Newport News as part of its review.

4(b)(2) City of Newport News. The City of Newport News did not respond to DEQ's request for comments.

FEDERAL CONSISTENCY UNDER THE COASTAL ZONE MANAGEMENT ACT

Pursuant to the Coastal Zone Management Act of 1972, as amended, federal actions that can have reasonably foreseeable effects on Virginia's coastal resources or coastal uses must be implemented in a manner consistent with the Virginia Coastal Zone Management Program (VCP). The VCP consists of a network of programs administered by several state agencies. In order to be consistent with the VCP, the project activities must be consistent with the enforceable policies of the VCP, and all the applicable permits and approvals listed under the enforceable policies of the VCP must be obtained prior to commencing the project. DEQ coordinates the review of FCDs with agencies administering the enforceable and advisory policies of the VCP.

Public Participation

In accordance with 15 CFR §930.2, a public notice of this proposed action was published on the DEQ website from May 12, 2014 to May 20, 2014. No public comments were received in response to the notice.

Federal Consistency Concurrence

The Army Corps of Engineers has determined that the proposed action will be conducted in a manner consistent, to the maximum extent practicable, with the enforceable policies of the Virginia Coastal Zone Management Program (FCD, page 6, "Determination" heading (file page 325)). Based on our review of the FCD and the comments submitted by agencies administering the enforceable policies of the VCP, DEQ concurs that the proposed action is consistent with the VCP, provided all applicable permits and approvals are obtained as described below. However, other state approvals which may apply to this action are not included in this FCD. Therefore, the Corps must also ensure that this action is carried out in accordance with all applicable federal, state, and local laws and regulations.

Analysis of Enforceable Policies

The following enforceable policies do not appear to apply to this project:

- Non-point Source Pollution Control (FCDE, pages 2-3, item E (file pages 321-322));
- Air Pollution Control (FCD, page 3, item H (file page 322));
- Coastal Lands Management (FCD, pages 3-4, item I (file pages 322-323));
- Shoreline Sanitation (FCD, page 3, item g (file page 322)); and
- Dunes Management (FCD, page 2, item D (file page 321)).

The analysis which follows responds to the discussion of the enforceable policies of the VCP that apply, or may apply, to the proposed action.

1. Subaqueous Lands Management. According to the FCD, impacts to water quality will be minor and temporary, and there is no submerged aquatic vegetation in the project area. Dredged material disposal at the NODS will occur beyond state territorial waters (FCD, page 2, item B).

1(a) Agency Jurisdiction. The Virginia Marine Resources Commission (VMRC), pursuant to Virginia Code sections 28.2-1200 *et seq.*, has jurisdiction over any encroachments in, on, or over any state-owned rivers, streams, creeks, or ocean in the Commonwealth. Accordingly, if any portion of the project involves any encroachments channelward of mean low water, a permit may be required from VMRC.

The VMRC also serves as the clearinghouse for the Joint Federal-State Permit Application (JPA) used by the:

- VMRC for encroachments on or over state-owned subaqueous beds as well as tidal wetlands;
- U.S. Army Corps of Engineers (Corps) for issuing permits pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act;
- DEQ for issuance of a Virginia Water Protection Permit; and
- local wetlands board for impacts to wetlands.

1(b) Comments. VMRC states that no permit will be required, because the project consists of federal agency maintenance dredging of a federal navigation channel.

1(c) Conclusion. VMRC does not disagree with the FCD insofar as the Subaqueous Lands Management enforceable policy of the VCP is concerned.

2. Fisheries Management. According to the FCD, the Virginia Marine Resources Commission (VMRC) has issued a "no permit required" letter for the maintenance dredging of Skiffes Creek Channel (FCD, page 2, item A (file page 321)).

2(a) Agency Jurisdiction. The Fisheries Management program stresses the conservation and enhancement of finfish and shellfish resources and the promotion of commercial and recreational fisheries to maximize food production and recreational opportunities. This program is administered by the VMRC (Virginia Code §28.2-200 to §28.2-713) and the Department of Game and Inland Fisheries (DGIF) (Virginia Code §29.1-100 to §29.1-570).

2(b) Findings. DGIF states that Atlantic sturgeon, a federally listed endangered species, has been documented from the project area. In addition, Skiffes Creek and the James River have been designated Anadromous Fish Use Areas.

2(c) Recommendations.

2(c)(i) Atlantic Sturgeon. With regard to the Atlantic sturgeon, DGIF recommends that the Corps coordinate with NOAA Fisheries Service (see "Regulatory and Coordination Needs," item 2, below).

2(c)(ii) Anadromous Fish Use Area: Time-of-Year Restriction. Because the project area is an Anadromous Fish Use Area, DGIF recommends that in conducting the dredging activity, the Corps adhere to a time-of-year restriction from February 15 through June 15 of any year.

2(c)(iii) Erosion Controls. DGIF recommends adherence to erosion and sediment controls during dredging and placement of dredged materials.

2(d) Conclusion. DGIF did not disagree with the federal consistency determination so far as it concerns the Fisheries Management enforceable policy of the VQP.

3. Point Source Pollution Control. The FCD states that the project will not involve the use or creation of any point sources of pollution contemplated under section 402 of the federal Clean Water Act. Dredged material and transport will be regulated under section 103 of the federal Marine Protection, Research, and Sanctuaries Act (FCD, page 3, item F (file page 322); see the evaluation report in Draft SEA, Appendix B, file pages 53-119 and attachments).

3(a) Agency Jurisdiction. The point source pollution control enforceable policy of the Virginia Coastal Zone Management Program is administered by the State Water Control Board (DEQ) pursuant to Virginia Code section 62.1-44.15. Point source pollution control is accomplished through the implementation of:

- (1) the National Pollutant Discharge Elimination System (NPDES) permit program established pursuant to Section 402 of the federal Clean Water Act and administered in Virginia as the Virginia Pollutant Discharge Elimination System (VPDES) permit program; and
- (2) the Virginia Water Protection Permit program administered by DEQ; Virginia Code §62.1-44.15:5 and Water Quality Certification pursuant to Section 401 of the Clean Water Act.

3(b) Comments. DEQ's Tidewater Regional Office (DEQ-TRO) has no comments regarding point-source water permits (VPDES (Virginia Pollutant Discharge Elimination System), VPA (Virginia Pollution Abatement), MS4 (municipal separate storm sewer systems)), or groundwater permitting.

3(c) Conclusion. DEQ-TRO did not object to the applicant's statement that no point sources of water pollution are proposed as part of the project.

4. Wetlands Management. According to the FCD, there are wetlands located near the project area, but none within it (FCD, page 2, item C (file page 321)).

4(a) Agency Jurisdiction. The State Water Control Board (SWCB) promulgates Virginia's water regulations, covering a variety of permits to include Virginia Pollutant Discharge Elimination System Permit, Virginia Pollution Abatement Permit, Surface and Groundwater Withdrawal Permit, and the Virginia Water Protection Permit (VWPP). The VWPP is a state permit which governs wetlands, surface water, and surface water withdrawals/impoundments. It also serves as § 401 certification of federal Clean Water Act § 404 permits for dredge and fill activities in waters of the U.S. The VWPP Program is under the Office of Wetlands and Stream Protection (OWSP), within the DEQ Division of Water Quality Programs.

4(b) Permit Applicability. As described in the submitted information (specifically, correspondence from the Corps dated February 11, 2014), the project qualifies for a 13-RP-02 on which DEQ has provided § 401 Certification, according to DEQ's Tidewater Regional Office (DEQ-TRO). Therefore, a Virginia Water Protection (VWP) permit will not be required by the DEQ for this project. If the project scope changes or if it is determined that the project no longer qualifies for a Nationwide or Regional Permit from the Corps, a permit or waiver from DEQ may be required. See "Regulatory and Coordination Needs," item 3, below.

4(c) Conclusion. DEQ-TRO did not object to the finding in the FCD relative to the Wetlands Management enforceable policy of the VCP.

5. Regional and Local Concerns.

5(a) Jurisdiction. In accordance with 15 CFR 930, Sub-part A, § 930.6(b) of the *Federal Consistency Regulations*, DEQ, on behalf of the state, is responsible for securing necessary review and comment from other state agencies, the public, regional government agencies, and local government agencies, in determining the Commonwealth's concurrence or objection to a federal consistency determination or certification.

5(b) Comments.

5(b)(1) Hampton Roads Planning District Commission. As stated above ("Environmental Impacts and Mitigation," item 4(b)), the Hampton Roads Planning District Commission indicates that the proposed project appears consistent with local and regional plans and policies. The Commission consulted the staff of the City of Newport News as part of its review.

5(b)(2) City of Newport News. As stated above ("Environmental Impacts and Mitigation," item 4(b)), the City of Newport News did not respond to DEQ's request for comments.

REGULATORY AND COORDINATION NEEDS

1. Natural Heritage Resources.

1(a) Coordination.

1(a)(i) Department of Game and Inland Fisheries Database Assistance. Questions about the DGIF database of wildlife locations (see "Additional Environmental Considerations," item 2(d), above) may be directed to the Department of Game and Inland Fisheries (Gladys Cason, telephone (804) 367-0909 or e-mail Gladys.cason@dgif.virginia.gov).

1(a)(ii) Department of Conservation and Recreation Natural Heritage Updates. As indicated above ("Environmental Impacts and Mitigation," item 2(d)), the Corps is requested to contact DCR's Division of Natural Heritage for updated information if the project scope changes or a period of six months or more passes after receipt of this letter (begin with Rene' Hypes, telephone (804) 371-2708 or e-mail rene.hypes@dcr.virginia.gov).

1(b) Authorities. Authorities for DCR's Natural Heritage Program include, but are not limited to, Virginia Code sections 10.1-209 through 10.1-217.

2. Fisheries Management Enforceable Policy.

2(a) Coordination. In order to effectively protect the Atlantic sturgeon, the Corps is requested to coordinate with NOAA Fisheries (David O'Brien, e-mail david.obrien@noaa.gov).

2(b) Authorities. Authorities for DGIF's activities protecting endangered species include, but are not limited to, Virginia Code sections 29.1-563 through 29.1-570.

3. Wildlife Resources.

3(a) Coordination. In order to effectively protect bald eagles from adverse impacts of the project (see also "Environmental Impacts and Mitigation," item 1(c)(i), above), the Corps is asked to coordinate with the Department of Game and Inland Fisheries (begin with Amy Ewing, telephone (804) 367-2211 or e-mail amy.ewing@dgif.virginia.gov) or with the Virginia Field Office of the U.S Fish and Wildlife Service (begin with Cindy Schullz, telephone (804) 693-6694).

3(b) Additional Information. See item 1(a)(i), above.

3(b) Authorities. See item 2(b), above.

4. Wetlands Management Enforceable Policy

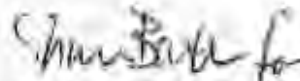
4(a) Coordination. As indicated above ("Federal Consistency...", "Analysis of Enforceable Policies" sub-heading, item 5(b)), if the project scope should change or if it is determined that the project no longer qualifies for a Nationwide or Regional Permit from the Corps, a permit or waiver from DEQ may be required. In either case, the Corps should consult with DEQ's Tidewater Regional Office (begin with Cindy Keltner, telephone (757) 518-2167 or e-mail cindy.keltner@deq.virginia.gov).

4(b) Authorities. Authorities for the Virginia Water Protection Program include, but are not limited to, the following:

- State Water Control Law, Virginia Code section 62.1-44.15:5D, requiring Virginia Water Protection Permits and prohibiting categories of activity in wetlands; and
- Regulations at 9 VAC 25-210-10, requiring avoidance of impacts, minimization of impacts, and compensating for unavoidable impacts.

Thank you for the opportunity to review the Draft SEA and FCD. If you have questions, please feel free to contact me (telephone (804) 698-4325 or e-mail ellie.iron@deq.virginia.gov) or Charles Ellis of this Office (telephone (804) 698-4195 or e-mail Charles.ellis@deq.virginia.gov).

Sincerely,



Ellie L. Irons, Program Manager
Environmental Impact Review

Enclosures

cc: Amy M. Ewing, DGIF
Keith R. Tignor, VDACS
Roberta D. Rhur, DCR
Cindy Keltner, DEQ-TRO
Larry Gavan, DEQ-OSM
Greg LaBudde, DHR
Michael Johnson, VMRC
Pamela Mason, VIMS
Benjamin D. McFarlane, Hampton Roads PDC
Everett Skipper, City of Newport News

From: Ewing, Amy (DGIF)
Sent: Thursday, May 22, 2014 2:43 PM
To: Ellis, Charles (DEQ)
Cc: Cason, Gladys (DGIF); Greenlee, Bob (DGIF); nhreview (DCR)
Subject: ESS-log# 18118-14-077F Skiffes Creek Federal Navigation Channel dredging

We have reviewed the subject project that proposes to perform maintenance dredging of Skiffes Creek and the James River in Newport News, VA.

According to our records, federal Endangered Atlantic sturgeon have been documented from the project area. Therefore, we recommend coordination with NOAA Fisheries Service regarding protection of this species.

Skiffes Creek and the James River have been designated Anadromous Fish Use Areas. Therefore, we recommend that all dredging in this area adhere to a time of year restriction from February 15 through June 15 of any year.

We also document bald eagle nests from the project area and this site appears to be located within the James River Summer and Winter Bald Eagle Concentration Zone. Significant habitat alteration, location of water-dependent facilities within concentration zones, or other recreational and commercial activities may result in adverse impacts upon eagles. Therefore, we recommend that the applicant ensure that this project is consistent with state and federal guidelines for protection of bald eagles; and that he coordinate as indicated with us or with the U.S. Fish and Wildlife Service regarding possible impacts upon bald eagles or the need for a federal bald eagle take permit.

This project is located within 2 miles of a documented occurrence of a state or federal threatened or endangered plant or insect species and/or other Natural Heritage coordination species. Therefore, we recommend coordination with VDCR-DNH regarding the protection of these resources.

We recommend adherence to erosion and sediment controls during dredging and placement of dredged materials.

Thanks, Amy

Amy Ewing @ Environmental Services Biologist/FWIS Manager @ VA Dept. of Game and Inland Fisheries @ 4010 West Broad St. Richmond, VA 23230 @ 804-367-2211 @ www.dgif.virginia.gov

of Grassy Pasture.



COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

1000 West Main Street, 2nd Floor
Richmond, Virginia 23210
(804) 786-6171

MEMORANDUM

DATE: May 20, 2014
TO: Charlie Ellis, DEQ
FROM: Roberta Rhur, Environmental Impact Review Coordinator
SUBJECT: DEQ 14-077E, Skiffes Creek Federal Navigation Channel Maintenance Dredging

Division of Natural Heritage

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

Biotics documents the presence of natural heritage resources in the project area. However, due to the scope of the activity and the distance to the resources, we do not anticipate that this project will adversely impact these natural heritage resources.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Gladys Cason (804-367-0909 or Gladys.Cason@dgif.virginia.gov). This project is located within 2 miles of a documented occurrence of a state listed animal. Therefore, DCR recommends coordination with

VDGIF, Virginia's regulatory authority for the management and protection of this species to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 - 570).

The remaining DCR divisions have no comments regarding the scope of this project. Thank you for the opportunity to comment.

CC: Amy Ewing, VDGIF



COMMONWEALTH of VIRGINIA

Department of Historic Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Molly Joseph Ward
Secretary of Natural Resources

Julie V. Langan
Director
Tel: (804) 367-2323
Fax: (804) 367-2391
www.dhr.virginia.gov

May 19, 2014

Mr. Charles H. Ellis III
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, Virginia 23219

RE: Skiffes Creek Federal Navigation Channel Maintenance Dredging
Project No. 14-077F
DHR File No. 2012-0961

Dear Mr. Ellis:

The Department of Historic Resources (DHR) has received an Environmental Impact Review Request for the project referenced above. Pursuant to Section 106 of the National Historic Preservation Act, DHR has been in direct consultation with the U.S. Department of the Air Force, Fort Eustis and its agents regarding this project and the parties have reached consensus that the Skiffes Creek Federal Navigation Channel Maintenance Dredging project will result in *no adverse effect* on historic properties. DHR has no further comment at this time.

Thank you for the opportunity to comment on this project. If you have any questions, please do not hesitate to contact me at gregory.labudde@dhr.virginia.gov.

Sincerely,

Greg LaBudde, Archaeologist
Review and Compliance Division

Administrative Services
10 Courthouse Ave.
Petersburg, VA 23803
Tel: (804) 862-6408
Fax: (804) 862-6186

Capital Region Office
2801 Kensington Avenue
Richmond, VA 23221
Tel: (804) 367-2323
Fax: (804) 367-2391

Tidewater Region Office
14415 Old Courthouse Way
2nd Floor
Newport News, VA 23608
Tel: (757) 886-3818
Fax: (757) 886-2808

Western Region Office
962 Kline Lane
Salem, VA 24153
Tel: (540) 387-5443
Fax: (540) 387-5446

Northern Region Office
5357 Main Street
PO Box 519
Stephens City, VA 22653
Tel: (540) 868-7029
Fax: (540) 868-7033



KENNETH L. WRIGHT, CHAIRMAN • CLYDE HADJIMAN, VICE-CHAIR • JAMES D. KICKOROUGH, TREASURER
DWIGHT L. FARMER, EXECUTIVE DIRECTOR/SECRETARY

MEMBER
JURISDICTIONS

May 28, 2014

CHESAPEAKE

Mr. Charles H. Ellis, III
Virginia Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, 6th Floor
Richmond, VA 23219

FRANKLIN

GLOUCESTER

HAMPTON

RE: DEQ#14-077F, Skiffes Creek Federal Navigation Channel,
Maintenance Dredging (ENV:GEN)

ISLE OF WIGHT

Dear Mr. Ellis,

JAMES CITY

Pursuant to your request, the staff of the Hampton Roads Planning District Commission has reviewed the Draft Supplemental Environmental Assessment and Consistency Determination for the following project, Skiffes Creek Federal Navigation Channel, Maintenance Dredging, in the City of Newport News. We have consulted with City staff regarding this project.

NEWPORT NEWS

NOFPOLE

Based on this review, the proposal appears to be consistent with local and regional plans and policies.

POQUOSON

PORTSMOUTH

We appreciate the opportunity to review this project. If you have any questions, please do not hesitate to call.

SOUTHAMPTON

Sincerely,

SUFFOLK

SURREY

Dwight L. Farmer
Executive Director/Secretary

VIRGINIA BEACH

BJM/jc

WILLIAMSBURG

Copy: Louis Bott, NN

YORK

From: Johnson, Mike (MRC)
Sent: Monday, May 12, 2014 11:00 AM
To: Ellis, Charles (DEQ)
Subject: FW: NEW PROJECT ARMY 14-077F

Good morning,

As this project involves the maintenance dredging of a Federal Navigation Channel by a Federal Agency a permit from the Virginia Marine Resources Commission will not be required. Please contact me if you have any other questions or concerns.

Mike Johnson
Habitat Management Division
VMRC
2600 Washington Ave.
Newport News, Va 23607
757-247-2255



DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
ENVIRONMENTAL IMPACT REVIEW COMMENTS

May 29, 2014

PROJECT NUMBER: 14-0771

PROJECT TITLE: Skiffes Creek Federal Navigation Channel Maintenance
Dredging

As requested, TRO staff has reviewed the supplied information and has the following comments:

Petroleum Storage Tank Cleanups:
No comments.

Petroleum Storage Tank Compliance/Inspections:
No comments.

Virginia Water Protection Permit Program (VWPP):
As described in the submitted information, specifically, correspondence from the U.S. Army Corps of Engineers (Corps) dated February 11, 2014, the project qualifies for a 13-RP-02 on which DEQ has provided § 401 Certification. Therefore, a Virginia Water Protection (VWP) permit will not be required by the DEQ for this project. If the project scope changes or if it is determined that the project no longer qualifies for a Nationwide or Regional Permit from the Corps, a permit or waiver from DEQ may be required.

Air Permit Program :
No Comments.

Water Permit Program :
Water Permits(VPDES/ VPA/ MS4) – no comments

Groundwater – no comments

Waste Permit Program :
No comment if the spoils are going to be disposed of at the NOD. However, if disposal is anticipated to be at a regional solid waste landfill further characterization in accordance with the Virginia Hazardous Waste Management Regulations and a special waste disposal waste request will be required.

The staff from the Tidewater Regional Office thanks you for the opportunity to provide comments.



DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
ENVIRONMENTAL IMPACT REVIEW COMMENTS

May 29, 2014

PROJECT NUMBER: 14-077F

PROJECT TITLE: Skiffes Creek Federal Navigation Channel Maintenance
Dredging

Sincerely,

Cindy Keltner
Environmental Specialist II
5636 Southern Blvd.
VA Beach, VA 23462
(757) 518-2167
Cindy.Keltner@deq.virginia.gov



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

June 2, 2014

Operations Branch

Mr. Greg LaBudde
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

Dear Mr. LaBudde:

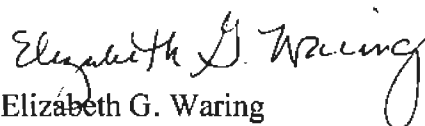
This letter is in response to your agency's May 20, 2014 comment regarding the Draft Supplemental Environmental Assessment (SEA) for the Skiffes Creek Federal Navigation Channel Maintenance Dredging, which was submitted to your office for comment on April 29, 2014. Your agency's letter is attached for your convenience.

Your letter stated that pursuant to Section 106 of the National Historic Preservation Act, VDHR has been in direct consultation with the U.S. Department of the Air Force, Fort Eustis and its agents regarding this project and the parties have reached a consensus that the Skiffes Creek Federal Navigation Channel maintenance dredging project will result in *no adverse effect* on historic properties.

Corps Response: *The Corps concurs with VDHR's determination that the project will result in no adverse effect on historic properties.*

Your comments and our responses, as noted above, will be incorporated into the final SEA. A copy of the final SEA will be available to you at your request. If you have any questions, please contact Mr. Robert Pruhs, via telephone at (757) 201-7130 or via email at robert.s.pruhs@usace.army.mil.

Sincerely,


Elizabeth G. Waring
Chief, Operations Branch

Enclosure



COMMONWEALTH of VIRGINIA

Department of Historic Resources

Molly Joseph Ward
Secretary of Natural Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Julie V. Langan
Director
Tel: (804) 367-2323
Fax: (804) 367-2391
www.dhr.virginia.gov

May 20, 2014

Mr. Robert Pruhs
U.S. Army Corps of Engineers, Norfolk District
803 Front Street
Norfolk, Virginia 23510

RE: Skiffes Creek Federal Navigation Channel Maintenance Dredging
Draft Supplemental Environmental Assessment
DHR File No. 2012-0961

Dear Mr. Pruhs:

The Department of Historic Resources (DHR) has received the Draft Supplemental Environmental Assessment referenced above. Pursuant to Section 106 of the National Historic Preservation Act, DHR has been in direct consultation with the U.S. Department of the Air Force, Fort Eustis and its agents regarding this project and the parties have reached a consensus that the Skiffes Creek Federal Navigation Channel Maintenance Dredging project will result in *no adverse effect* on historic properties. DHR has no further comment at this time.

Thank you for the opportunity to comment on this project. If you have any questions, please do not hesitate to contact me at gregory.labudde@dhr.virginia.gov.

Sincerely,

A handwritten signature in cursive script that reads "Greg LaBudde".

Greg LaBudde, Archaeologist
Review and Compliance Division

Administrative Services
10 Courthouse Ave.
Petersburg, VA 23803
Tel: (804) 862-6408
Fax: (804) 862-6196

Capital Region Office
2801 Kensington Avenue
Richmond, VA 23221
Tel: (804) 367-2323
Fax: (804) 367-2391

Tidewater Region Office
14415 Old Courthouse Way
2nd Floor
Newport News, VA 23608
Tel: (757) 886-2818
Fax: (757) 886-2808

Western Region Office
962 Kime Lane
Salem, VA 24153
Tel: (540) 387-5443
Fax: (540) 387-5446

Northern Region Office
5357 Main Street
PO Box 519
Stephens City, VA 22655
Tel: (540) 868-7029
Fax: (540) 868-7033



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

June 2, 2014

Operations Branch

Mr. Mike Johnson
Virginia Marine Resources Commission
2600 Washington Avenue
Newport News, Virginia 23607

Dear Mr. Johnson:

This letter is in response to Virginia Marine Resource Commission (VMRC) May 7, 2014 comment regarding the Draft Supplemental Environmental Assessment (SEA) for the Skiffes Creek Channel Maintenance Dredging Draft Supplemental Environmental Assessment which was submitted to your office for comment on April 29, 2014. Your agency's email is attached for your convenience.

Your email stated that you received the request for comments for authorization to maintenance dredge the Skiffes Creek Federal Navigation Channel at Fort Eustis, in the City of Newport News, VA. The dredge area is within the Congressionally approved project channel and turning basin and that spoil will be placed at the Norfolk Ocean Disposal Site (NODS), therefore no authorization is required from VMRC for this project

Corps Response: *The Corps concurs with VMRC's determination that no authorization is required from the VMRC for this project.*

Your comment and our response, as noted above, will be incorporated into the final SEA. A copy of the final SEA will be available to you at your request. If you have any questions, please contact Mr. Robert Pruhs, via telephone at (757) 201-7130 or via email at robert.s.pruhs@usace.army.mil.

Sincerely,

Elizabeth G. Waring
Chief, Operations Branch

Enclosure

From: Johnson, Mike (MRC)
To: Pruhs, Robert S NAO
Subject: [EXTERNAL] Skiffes Creek maintenance dredging, Draft Supplemental Environmental Assessment
Date: Wednesday, May 07, 2014 11:09:29 AM

Good morning,

This will acknowledge receipt of your request for comments for authorization to maintenance dredge the Skiffes Creek Federal Navigation Channel at Fort Eustis, in the City of Newport News, VA.

It is my understanding that the dredge area is within the Congressionally approved project channel and turning basin and that the spoil will be placed at the Norfolk Ocean Disposal Site (NODS), therefore no authorization is required from VMRC for this project.

Thank you for the opportunity to comment on this proposal and if you have any other questions or comments please do not hesitate to contact me.

Mike Johnson

Habitat Management Division

VMRC

2600 Washington Ave.

Newport News, Va 23607

757-247-2255



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

June 2, 2014

Operations Branch

Ms. Amy Ewing
Virginia Department of Game and Inland Fisheries
4010 West Broad Street
Richmond, Virginia 23230

Dear Ms. Ewing:

This letter is in response to your agency's May 22, 2014 comments regarding the Draft Supplemental Environmental Assessment (SEA) for the Skiffes Creek Channel Federal Channel maintenance dredging project, which was submitted to your office for comment on April 29, 2014. Your agency's email is attached for your convenience.

On May 22, 2014, you responded via email with comments and/or recommendations. You stated that the federal endangered Atlantic sturgeon has been documented in the project area and you recommend coordination with NOAA Fisheries Service regarding protection of this species. You state that Skiffes Creek and the James River have been designated anadromous fish use areas and you recommend that all dredging in this area adhere to a time of year restriction from February 15 through June 15 of any year. Finally, you state that you document bald eagle nests from the project area and this site appears to be located within the James River Summer and Winter Bald Eagle Concentration Zone. Therefore you recommend that the applicant ensure that this project is consistent with state and federal guidelines for protection of bald eagles; and that we coordinate as indicated with you or with U.S. Fish and Wildlife Service regarding possible impacts upon bald eagles or the need for a federal bald eagle take permit. Below is a summary of your comments and our responses are in italics:

1. According to our records, federal Endangered Atlantic sturgeon have been documented from the project area. Therefore, we recommend coordination with NOAA Fisheries regarding protection of this species.

***Corps Response:** The Corps initiated informal consultation with the National Marine Fisheries Service (NMFS) regarding Atlantic sturgeon in March 2012 regarding maintenance dredging activities in Skiffes Creek Channel and again in May 2013 regarding mechanical dredging and dredged material placement at the Norfolk Ocean Disposal Site (NODS). NMFS concurred with the not likely to adversely affect conclusion in letters on April 17, 2012 and June 27, 2013 concluding Section 7 consultation.*

2. Skiffes Creek and the James River have been designated Anadromous Fish Use Areas. Therefore, we recommend that all dredging in this area adhere to a time of year restriction from February 15 through June 15 of any year.

***Corps Response:** The Corps does not concur with the recommended Time of Year (TOY) restriction for any dredging from February 15 to June 15 of any year. The transport of*

dredged material for the purpose of placement in the territorial sea at the Norfolk Ocean Disposal Site (NODS) will avoid any significant in-stream effects in state waters including passage of anadromous fishes. The Corps appreciates the VDGIF's role as an advisory agency. However, the Corps has conducted studies and substantial monitoring in coordination with the VDGIF concerning fish passage in relation to dredging and dredged material placement activities. These studies have indicated that dredging does not deter the movement of anadromous fishes. Provided that the dredged material placement occurs at the NODS, the Corps believes the recommended time of year restriction to be unwarranted for the dredging activity itself.

3. We also document bald eagle nests from the project area and this site appears to be located within the James River Summer and Winter Bald Eagle Concentration Zone. Significant habitat alteration, location of water dependent facilities within concentration zones, or other recreational and commercial activities may result in adverse impacts upon eagles. Therefore, we recommend that the applicant ensure that this project is consistent with state and federal guidelines for protection of bald eagles; and that he coordinate as indicated with us or with U.S. Fish and Wildlife Service regarding possible impacts upon bald eagles or the need for a federal bald eagle take permit.

***Corps Response:** The Corps will ensure the project is consistent with state and federal guidelines. Maintenance dredging of the channel is well outside of established buffers of known bald eagle nesting sites around the project area. Your comment is noted concerning recommended coordination for possible impacts or for the need for a federal bald eagle take permit.*

4. This project is located within 2-miles of a documented occurrence of a state or federal threatened or endangered plant or insect species and/or other Natural Heritage coordination species. Therefore, we recommend coordination with VDCR-DNH regarding the protection of these resources.

***Corps Response:** VDCR-DNH has reviewed the scope of this project and commented that "Biotics documents the presence of natural heritage resources in the project area. However, due to the scope of the activity and the distance to the resources, we do not anticipate that this project will adversely impact these natural heritage resources."*

5. We recommend adherence to erosion and sediment controls during dredging and placement of dredged materials.

***Corps Response:** Erosion and sediment controls and best management practices will be applied to maintenance activities involving upland soil disturbance at the Fort Eustis Dredged Material Management Area (FEDMMA). However, erosion and sediment controls do not have practicable application to the dredging process or dredged material placement at the Norfolk Ocean Disposal Site (NODS).*

Your comments and our responses, as noted above, will be incorporated into the final SEA. A copy of the final SEA will be available to you at your request. If you have any questions, please

contact Mr. Robert Pruhs, Technical Support Section, via telephone at (757) 201-7130 or via email at robert.s.pruhs@usace.army.mil.

Sincerely,

A handwritten signature in cursive script that reads "Elizabeth G. Waring".

Elizabeth G. Waring
Chief, Operations Branch

Enclosure

Pruhs, Robert S NAO

From: Ewing, Amy (DGIF) [Amy.Ewing@dgif.virginia.gov]
Sent: Friday, May 30, 2014 11:57 AM
To: Pruhs, Robert S NAO
Cc: Cason, Gladys (DGIF)
Subject: [EXTERNAL] FW: ESSLog#33093_ 18118_14-077F_Skiffes Creek Federal Navigation Channel dredging

Robert,

See below comments we provided DEQ OEIR on the subject project. The remain valid.

Thanks, Amy

Amy Ewing [Environmental Services Biologist/FWIS Manager [VA Dept. of Game and Inland Fisheries [4010 West Broad St. Richmond, VA 23230 [804-367-2211 [www.dgif.virginia.gov]
<<http://www.dgif.virginia.gov>>

Green_footers_8

From: Ewing, Amy (DGIF)
Sent: Thursday, May 22, 2014 2:43 PM
To: Ellis, Charles (DEQ)
Cc: Cason, Gladys (DGIF); Greenlee, Bob (DGIF); nhreview (DCR)
Subject: ESSLog# 18118_14-077F_Skiffes Creek Federal Navigation Channel dredging

We have reviewed the subject project that proposes to perform maintenance dredging of Skiffes Creek and the James River in Newport News, VA.

According to our records, federal Endangered Atlantic sturgeon have been documented from the project area. Therefore, we recommend coordination with NOAA Fisheries Service regarding protection of this species.

Skiffes Creek and the James River have been designated Anadromous Fish Use Areas. Therefore, we recommend that all dredging in this area adhere to a time of year restriction from February 15 through June 15 of any year.

We also document bald eagle nests from the project area and this site appears to be located within the James River Summer and Winter Bald Eagle Concentration Zone. Significant habitat alteration, location of water-dependent facilities within concentration zones, or other recreational and commercial activities may result in adverse impacts upon eagles. Therefore,

we recommend that the applicant ensure that this project is consistent with state and federal guidelines for protection of bald eagles; and that he coordinate as indicated with us or with the U.S. Fish and Wildlife Service regarding possible impacts upon bald eagles or the need for a federal bald eagle take permit.

This project is located within 2 miles of a documented occurrence of a state or federal threatened or endangered plant or insect species and/or other Natural Heritage coordination species. Therefore, we recommend coordination with VDCR-DNH regarding the protection of these resources.

We recommend adherence to erosion and sediment controls during dredging and placement of dredged materials.

Thanks, Amy

Amy Ewing [Environmental Services Biologist/FWIS Manager [VA Dept. of Game and Inland Fisheries [4010 West Broad St. Richmond, VA 23230 [804-367-2211 [www.dgif.virginia.gov <<http://www.dgif.virginia.gov/>>

Green_footers_8